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ARMY Communicator

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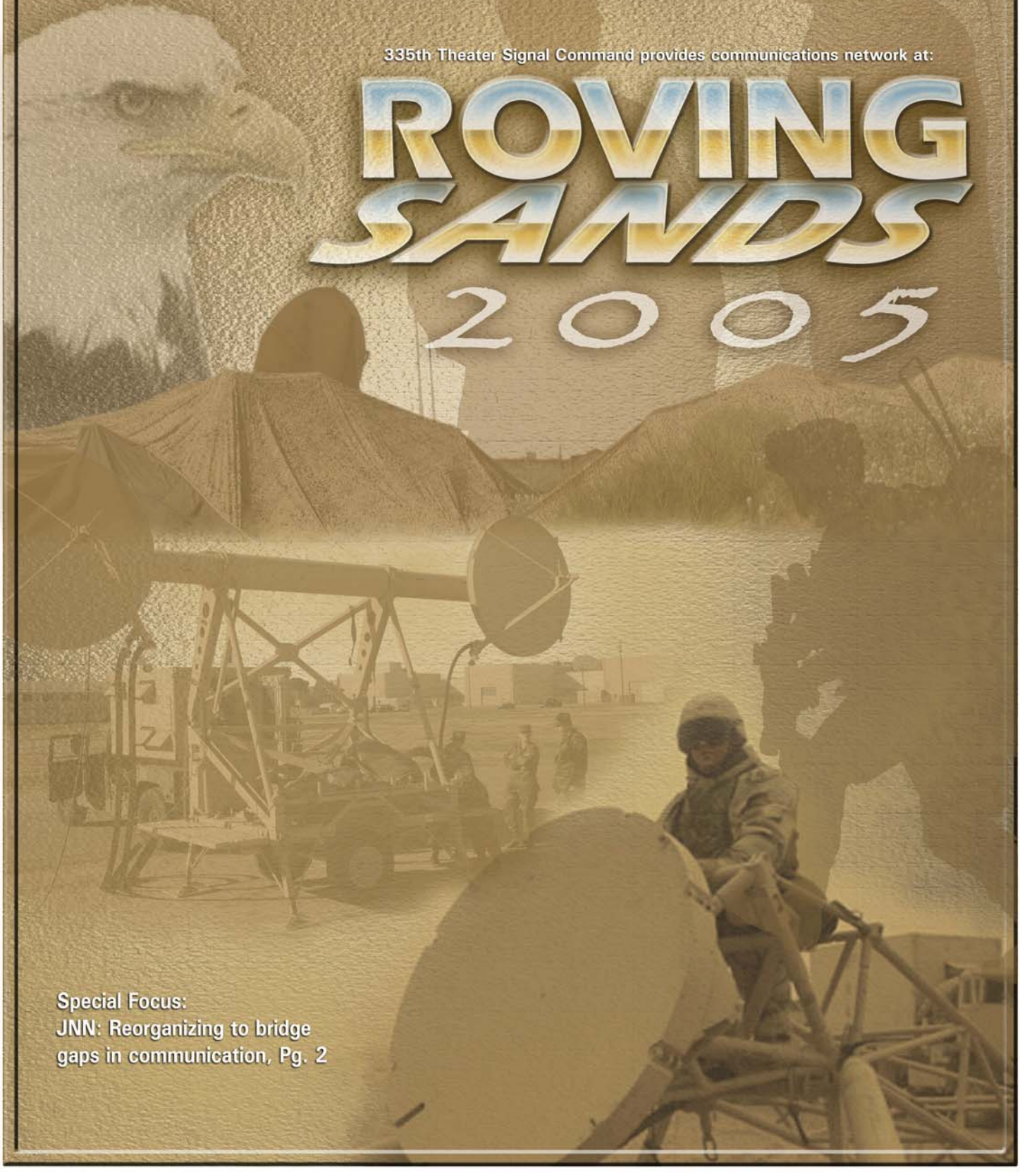
335th Theater Signal Command provides communications network at:

ROVING SANDS 2005



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Chief of Signal's Comments

31st Chief of Signal looks forward to serve Regiment

Fellow members of the Signal Regiment:

Greetings from your 31st Chief of Signal. I am truly honored, excited, and humbled by the incredible opportunity and tremendous privilege to serve as our Army's Chief of Signal and as the Commanding General, U.S. Army Signal Center. Simply stated, it's great to be back at Fort Gordon! I look forward to working with all members of the Regiment as we continue to simultaneously transform the Regiment and execute our mission in the Global War on Terrorism. I know that every member of the Regiment is working hard to make this happen. Although we have achieved much success in both areas, there is still plenty to be achieved.

We really are living in a time of incredible challenges. I know many of you reading this column have faced the real challenges of deployments to Iraq or Afghanistan and some of you are actually reading this edition of the Army Communicator while deployed in harm's way. Many of you are assigned to organizations that are radically changing into the modular UEx and its Brigade Combat Teams. Just staying up with all the changes is a real challenge. The goodness is that I know collectively there is no challenge insurmountable to the Signal Regiment. Our history is full of many significant accomplishments and the future is just as bright as a result of all the magnificent work you are doing today.

BG Randolph P. Strong
Chief of Signal

These are exciting times in the military, and particularly the Signal Corps. Never before in our history has change been so commonplace. And, we are transforming while at war. The new equipment and capabilities we are fielding will significantly enhance not only the Army's ability to communicate, but also our joint and coalition partners. To name just two of the many ongoing programs, at the tactical level we are fielding Joint Network Nodes, part of the Joint-Network Transport Capability – Spiral and at the strategic level the TELEPORT program is upgrading the legacy Standard Tactical Entry Port sites. The networks and information systems provided by the Signal Regiment are at center and are key enablers to every ongoing transformation effort in U.S. military.

I have been blessed throughout my entire career to have served with outstanding Soldiers, government Civilians, contractors and senior leaders. I would not be writing this column as the Chief of Signal had it not been for many of you. From my first assignment as a platoon leader in the 1st Infantry Division's Signal Battalion to my most recent assignment as the US Pacific Command J6; whether or not the assignment was tactical, strategic, or joint, I have had the opportunity to work with so many talented people who chose to serve our country – all of you. Without a doubt, it has been a very rewarding experience. Please accept my personal thanks and appreciation for everything all of you do. I am awed by the dedication and professionalism of the Regiment.

Look forward to a continuing dialogue in this column.

Acronym QuickScan

JNN – Joint Network Node
JNTC-S – Joint-Network Transport Capability – Spiral
STEP – Standard Tactical Entry Port

The networks and information systems provided by the Signal Regiment are at center and are key enablers to every ongoing transformation effort in U.S. military.

U.S. ARMY SIGNAL CENTER AND FORT GORDON

Worldwide web homepage address http://www.gordon.army.mil/AC/
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Voice of the Signal Regiment

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Cover: Roving Sands 2005The 335th TSC successfully installed, operated, and maintained the communications architecture for the Joint Interoperability Exercise, Joint Red Flag 2005. Cover by Billy Cheney

Departments

Official:
Sandra R. Riley

SANDRA R. RILEY
Administrative Assistant to the Secretary of the Army

By Order of the Secretary of the Army

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

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JNN: Reorganizing to bridge gaps in communication

By CPT Byron G. Johnson

The Army's quest for modularity is methodically making its way to every division. The first to undergo the process however, was the 3rd Infantry Division, based at Fort Stewart, Ga. This new concept is directly affecting virtually every branch of service in some form or fashion. All branches are adjusting to new equipment, personnel and even doctrinal changes.

Operation Iraqi Freedom I and recent Combat Training Center rotations have identified need for the Signal Corps to transform to support modularity. The legacy Mobile Subscriber Equipment can barely support the present data requirements of the Army. The Army of the future will require even more situational awareness, bandwidth and interoperability. In order to attain these goals, the Signal Corps has three areas to address: equipment fielding, personnel requirements and modifying the division Signal doctrine. The emphasis placed in these areas is vital in successfully achieving Signal modularity. By attaining modularity, the Signal Corps will bridge the technological gap in Army communications.

A modified solar shade is used to provide the 2nd Brigade KU trailer with extra protection from the extreme desert temperatures.

Equipment bridge

During OIF I, tactical units needed more satellite based communications because they outran the line-of-sight capabilities of their Mobile Subscriber Equipment. The equipment of choice is the Joint Network Node, Command Post Nodes, KU band satellite trailer and additional associated equipment. The line-of-sight equipment could not keep up on the modern battlefield, nor is it designed to provide the increased level of bandwidth and Army Battle Command Systems services that maneuver commanders require. Services range from Secure Internet Protocol Router and Non-Secure Internet Protocol Router, to Video Teleconferencing. The equipment also enables both circuit switching and Internet Protocol-based networking. It is interoperable with MSE through the VANTAGE switching technology. The VANTAGE provides seamless interface between Voice over IP and tactical networks through the use of two dedicated MSE trunks. The JNN package is very mobile and designed to provide these services to the Brigade Combat Team commander and as far down as the battalion command posts.

The 3rd Infantry Division was first to field the JNN. The fielding of the JNN presented many challenges. The fielding timeline included new equipment training which spanned Aug. 4 - Nov. 4. This was nested firmly within the brigade's preparation for Operation Iraqi Freedom III and a rotation to the Joint Readiness Training Center. This conflict caused us to undergo the train-up at JRTC with MSE while Soldiers and leaders trained on the static JNN systems back at Fort Stewart. There were also operational adjustments to be made to accomplish the mission. Although none of the challenges presented were "show stoppers," there are some provisions that could be implemented which might make the fielding process

more efficient for subsequent divisions.

Due to an aggressive operational tempo, we were forced to field the equipment on an accelerated timeline. This hindered our ability to get ample hands-on field training. Even in the formal classroom sessions, many of our Soldiers lacked the prior level of training or technical experience necessary to fully grasp concepts presented. The "new" signal Soldier must receive prerequisite training during Advanced Individual Training to provide a baseline level of knowledge of the JNN/CPN. This would allow the General Dynamics instructors to develop a solid curriculum and maximize training value.

Network operations, 2nd Brigade non-commissioned officer in charge, is the planning and management cell for all brigade communication systems.

Editor's Note: *A new MOS has been created that will address these concerns. The 25N, Node Network Sytems Operator and Maintainer will resolve these issues. The 25N Soldier will be produced by the Signal Center this fall in time to backfill the returning 3rd Infantry Division.*

JNN has proven to be extremely robust in supporting an expanded number of subscribers. The basic JNN package supports 30 SIPR and 30 NIPR voice and wire subscribers. It could also support 48 Defense Switched Network lines. The CPN offers 20 SIPR and 20 NIPR voice and data subscribers with no DSN access. This places the overall brigade capability at 130 SIPR, 130 NIPR subscribers, and 48 DSN lines. Yet, the 2nd BCT JNN is currently maintaining 296 SIPR subscribers, 217 NIPR subscribers and 157 VoIP phones while deployed to OIF III in Baghdad, Iraq.

These are truly astonishing numbers for a brigade-sized element. However, the brigade purchased $300,000 worth of additional off-the-shelf equipment to make this expansion a reality. To alleviate the need to allocate unit funds, the JNN should be fielded with a network expansion packet that includes more VoIP phones, Category 5 cables, and programmable routers and switches at a minimum. If this is not possible the brigade and maneuver battalions must forecast and purchase these items as soon as possible.

This will increase the system's versatility as well as its ability to expand services to the lowest levels.

The current configuration of the JNN presents some challenges. The present package was fielded with a S250 shelter mounted on an M1113 humvee. This one shelter contains all of the necessary switching and encrypting equipment. It is very cleverly constructed, separating the NIPR (Black side) from the SIPR (Red side).

The subscriber port packages are all contained in a series of 10 large, transit Pelican cases. This became a real issue when it became time to go to the field. There was not a dedicated vehicle fielded to transport this equipment. A M1080 LMTV (cargo) support truck to carry the transit cases will definitely fix this transportation problem. Another viable option would involve designing a M1079 LMTV (van) to accommodate the package in a mounted configuration. At any rate, if a dedicated vehicle is not approved, a plan must be implemented to get the complete system to the fight. This will spare heartache down the road and it will also make the system more dynamic and adaptable in support of the fluid BCT mission.

Another concern with JNN is the latency issue. The KU band satellite is the primary transmission source for JNN. The increased latency is caused by the extra milliseconds required for data to travel from satellite to satellite. There are no real problems with traditional data or voice. The problem is more prevalent when using the Command Post of the Future.

The Time Division Multiple Access technique in which a frequency channel is divided into a sequence of time slots creates such latency that CPOF will not function properly. For this reason the high capacity line-of-sight shelters are used to tunnel this SIPR traffic. This issue has been addressed to the Project Manager Tactical Radio Communications Systems and they are currently working diligently to improve the satellite latency.

Overall the upside of JNN is truly endless.

The system can perform virtually every communication operation at a much greater pace than the legacy MSE equipment. We are taking a network that was virtually all LOS, and making it practically pure satellite based. This equipment is much more flexible terrain-wise and is up and operational in less than 15 minutes. The CPN can be up on the satellite in 10 minutes or less and it can then be programmed remotely from the JNN.

Theoretically, an entire brigade communication backbone can be established in two hours or less. Compare this to the normal MSE network which could easily require 36 hours to achieve the same capabilities; and the advantages of JNN can not be refuted.

The biggest benefit to the JNN is the increase in available bandwidth. This power gives the commanders the data push that they

need. The legacy MSE system operated with 2Mb of bandwidth. The JNN easily exceeds that with an exceptional capability of 8Mbs.

Combatant commanders at every level are increasingly using and relying on NIPR, SIPR, VTC, and other services that provide the capability to efficiently and effectively communicate with their subordinate commanders. This bandwidth allows us to use many of the latest technologies such as, Army Global Command and Control System and other ABCS systems.

Doctrinal bridge

The reorganization at Fort Stewart resulted in the deactivation of the 123rd Signal Battalion. Each divisional signal company including the current Alpha Company, 2-3 BTB was reorganized under a Brigade Troops Battalion. The 2nd Brigade Troops Battalion was formerly the 10th Engineer Battalion. The task organization of the battalion consists of an Headquarters and Headquarters Company, Alpha Signal Company, and Bravo Military Intelligence Company. This activation was a significant event for Alpha Company and marked a historical change in divisional signal doctrine. With a signal company embedded in each brigade, the conventional approach of having signal battalions serve as a pool of expertise and equipment for the division no longer existed. This battalion was formerly known for "Bridging the Sky"; but in support of a modular Army it is now focused on the life support of a company charged with bridging seamless communications.

With the signal battalion deactivated, the burden of managing the installation, operation and maintenance of communications systems did not fall on the shoulders of the BTB. The BTB is responsible for the operational and logistical support of the signal company. However the overall planning and execution is managed by the G-6. This doctrinal change makes cooperation and coordination between the brigade signal company and the G-6 vital. The G-6 issues network guidance and the brigade signal companies implement plans to support the subscriber requirements.

The CPN was designed to replicate the services that a legacy small extension node offered. Each maneuver and support battalion in the BCT was fielded with one. Assigning a CPN to each battalion's communication shop gives them a vested interest in maintaining the equipment because they own it. Since the equipment and team is a part of the battalion, it also fulfills the previous goal to develop the habitual relationships between the signal teams and the supported unit. It allows the battalion signal officer to fully manage the services within their battalion and report statuses to the brigade signal officer.

A goal of the modularity initiative is to make every brigade signal company operationally self-sufficient as well as interchangeable. With MSE if a company was tasked with a mission, the signal battalion would be required to provide a team to serve as the Integrated System Control. The JNN network allows the company to deploy and operate autonomously. Each company is given all the planning and monitoring tools needed to maintain a brigade network. The brigade network operations center functions just as the ISYSCON did for MSE networks. The NOC monitors all battalion CPNs, establishes installation priorities, and is responsible for engineering all links. This places a great responsibility on the signal company and the brigade communication shop. Each brigade's JNN manages their small network and the G-6 is responsible for the overall collective division network.

Personnel bridge

The reorganization resulted in a significant decrease in signal company personnel. The bulk of the efficiencies come from the employment of the JNN and associated equipment. The manpower requirement for JNN is much less than what was required by the MSE equivalent node center. Typically the old node center required at least 20 Soldiers to IOM. The JNN requires only eight Soldiers. Although the LOS personnel requirements have not changed significantly, it takes fewer Soldiers to accomplish the overall signal mission with the new equipment as compared to the requirement to operate the older equipment. Ultimately the company and the brigade have fewer Soldiers to support.

There were quite a few positions that were removed as result of the new equipment. However, the new MTOE does authorize the company a variety of military specialists who were previously only slotted at battalion and higher. A few positions of note include a network management technician, frequency manager, and COMSEC custodian. These specialized positions are vital. The positions give the signal company the ability to operate independently. The task organization supports the Army modularity design and allows more flexibility in choosing the right unit for the mission.

A couple of specialty allocations that should be reconsidered however are the 25S, (formerly 31S) satellite communications systems operator/maintainer and 25B (formerly 74B) information systems operator-analyst. JNN and associated equipment are satellite and router intensive. Currently each JNN is authorized two satellite communication systems operator/maintainers (25S) and one information systems operator (25B). These Soldiers are vital to the successful installation, operation, and especially the maintenance of this new equipment. There is a proposed plan to create a MOS designated as a JNN operator/maintainer (25N). However until the school transitions to this new training, these specialized Soldiers could pay huge dividends at the initial phase of the fielding. These specialists coupled with the existing company institutional knowledge will serve as the information bridge until the transition of MOSs is complete.

The bridge

In addition to being a major

combat operation, OIF I was a real life learning experience. It identified a need to reorganize the Army divisions to support a modular Army design. The Signal Corps filled this need with JNN. It is mobile, provides amazing bandwidth, and is fully interoperable. Information superiority is what the commanders on the ground want and deserve – JNN gives it to them. JNN allows the brigade signal company to better serve units deployed with the command, control, communications, computer systems, and intelligence that is required to acquire and integrate relevant information technologies. Commanders at all levels are able, within minutes, to make informed decisions based on real-time situational awareness feeds.

Now there are numerous challenges that will accompany this transition but the benefits of JNN are vividly displayed on a daily basis in support of OIF III. Whether it is sharing operational overlays for a future mission or "painting" a common operational picture between commands; JNN is paying huge dividends in all aspects of communications. As signaleers we have a huge responsibility to continue to use JNN and to ensure that this historical communication transition is seamless. We cannot afford to have "gaps" or any sort of communications shortfalls. The new signal personnel, doctrine and JNN are the "bridges" that will provide the Signal Corps with the flexible and reliable communications needed to win the nations wars both present and future.

CPT Johnson is currently deployed in support of OIF III as company commander of A Company 2-3 BTB, 2nd Bde, 3ID. Among the first units to field, deploy, and operate primarily with the JNN equipment. Previous assignments include (2003-2004) battalion S-6 with 3-15th INF, 2nd Bde, 3ID for OIF I, and (1999-2000) DGM platoon leader in the 304th Signal Battalion, Republic of Korea.

Acronym QuickScan

3ID – 3rd Infantry Division
ABCS – Army Battle Command Systems
AGCCS – Army Global Command and Control System
AIT – Advanced Individual Training
BCT – Brigade Combat Team
BTB – Brigade Toops Battalion
C4I – Command, Control, Communications, Computer systems, and Intelligence
CPN – Command Post Nodes
CPOF – Command Post of the Future
CTC – Combat Training Center
HCLOS – High Capacity Line-of-Sight
IOM – installation, Operation, and maintenance
IP – Internet Protocol
ISYSCON – Integrated System Control
OIF I – Operation Iraqi Freedom I
OIF III – Operation Iraqi Freedom III
JNN – Joint Node Network
JRTC – Joint Readiness Training Center
LOS – Line-of-Sight
MSE – Mobile Subscriber Equipment
NET – New Equipment Training
NIPR – Non-secure Internet Protocol Router
NOC – Network Operations Center
PM TRCS – Project Manager Tactical Radio Communications Systems
SEN – Small Extension Node
SIPR – Secure Internet Protocol Router
TDMA – Time Division Multiple Access
VoIP – Voice over Internet Protocol
VTC – Video Teleconferencing

Communication and Simulation Operations Center in a joint training environment:

An an integrated approach to simulation, interface, and tactical network monitoring

"There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things."

-- Niccolo Machiavelli

JOC Ground Floor Building 1026 Expeditionary Battle Command Training Center.

Introduction

The battle command, simulations, and communications communities have established a partnership to create a powerful capability to train elements of United Stated Army Southern European Task Force as they prepare to assume the mission of Combined Joint Task Force-76 in Afghanistan.

The training audience for Lion Challenge '04 and Unified Endeavor '05-2 were the Soldier warriors from USASETAF. They deployed to Grafenwöhr to practice command and control in Afghanistan before assuming the CJTF-76 mission. United States Army Europe and the United States Joint Forces Command provided training and mission rehearsals to ensure that USASETAF was prepared and equipped to accomplish the CJTF-76 mission.

USJFCOM and USAREUR military planners, like their predecessors, have long understood that developing better methods of obtaining and managing information is the key to victory on the modern battlefield. The past 15 years have seen significant advances in military simulations, networks, information management, and digital command and control. These high-tech advances enable leaders to exercise battle command faster, more precisely and more confidently than ever before. This information dominance has lead to increased lethality and survivability for our digital force. Changes in our digitized force structure along with emerging training requirements for the contemporary operating environment mandate the evolution of training tools with digital stimulation capabilities. The development of high fidelity simulations and adaptable interfaces play an important role in meeting these emerging requirements.

The technological challenges of this new capability can lead to frustration and loss of training by the warfighter, if the tools and systems made to train, fail in their objective. In the past, when these failures occurred during training events, it would be hours, or sometimes days before the problem was isolated and a solution found. In some cases, exercises were modified or cancelled if the problem could not be fixed. Senior leaders throughout the Army are sensitive to this and are taking action to ensure this capability has the support necessary to succeed.

Evolution of the CSOC

To prevent hard lessons from being repeated for the exercises described in this article, the USAREUR Commanding General, GEN B.B. Bell issued guidance in October of 2003, to the Commander of 7th Army Training Command, BG Robert M. Williams and the Commander of the 5th Signal Command, BG Carroll F. Pollett. The guidance was to build an organization that provided end-to-end monitoring and fault isolation of all simulations, interfaces, networks, and command and control systems to support the training of the warfighter. His goal was to capitalize on the technological breakthroughs in simulations and network training, and remove the hindrances that this complexity brings with it. During a training

Battle Command Training Center welcome sign stands in front of the center.

exercise briefing for the 1st Infantry Division's preparation for Operation Iraqi Freedom II, Bell gave the following guidance:

✓ "Develop a comprehensive set of tools to monitor simulations and command, control, communications, computers, intelligence, surveillance, and reconnaissance systems"

✓ "Someone must be in charge of a coordinated effort … gentlemen this is not business as usual"

✓ "We need a rapid fault isolation and robust fix-it capability … and the means to communicate with our simulations contact teams"

✓ "Conduct the right events prior to the exercise to insure the systems are fully integrated"

✓ "Don't wait until the exercise crashes to find out what the break point is … stress the systems early and know what to recommend if the system fails"

In order to accomplish this mandate, the 5th Signal Command, in partnership with the 7th Army Training Command's Directorate of Simulations, developed an operations center that became known as the Communications Simulations Operations Center. The CSOC was the first venture to combine and leverage the technical capabilities of two USAREUR-level signal and simulations organizations to support an exercise. The mission of the CSOC remains to continuously monitor and sustain simulation and tactical networks in order to support training for joint, interagency multinational both throughout USAREUR and in an expeditionary role.

Again in 2005, the 7th ATC and 5th Signal Command had the overall responsibility for linking communications and simulations with warfighter platforms to provide an integrated training enabler for the United States Army Southern European Task Force. The 5th Signal Command led this effort through the CSOC. Entering the CSOC, one passed into a world where the fusion of battle command, simulations, and communications gave the exercise director full visibility of CJTF-76 operations in real time. As the incoming Soldiers of CJTF-76 rehearsed their mission during Lion Challenge 2005 and Unified Endeavor '05-2, the information warriors in the CSOC were making sure, from a live, virtual, and constructive perspective, that conditions matched the environment in Afghanistan.

Members from the DOS, USAREUR G-3 Information Management Division and 69th Signal Battalion analyzed screens showing the status of simulations and C4ISR systems to align simulations, networks, and C4ISR systems. The CSOC provided full visibility, on the status of the various simulations, networks, and battle-command systems. Part of the power of the CSOC was in its integration with existing USAREUR network management systems. It also leveraged the ability to interrelate the theater network troubleshooting tools to support the training of the warfighter.

During the 1ID exercise the CSOC concept imparted many lessons learned to the warfighter, including the need to treat the C4ISR system as a weapon, and to view its utility in a collective setting, not as an individual computer. These lessons were again taught to SETAF, as they learned the value of a comprehensive set of C4ISR systems to provide a clear operational picture, and the necessity to place a key leader in charge of providing this end to end C4ISR continuum.

The objective

The complex nature of the exercise architecture required a robust organization to monitor the all around system health of the simulations, interfaces, networks, and command and control systems. The CSOC was designed to monitor end-to-end functionality; simulations, stimulation networks, and Army C4ISR, facilitating rapid fault isolation and providing proactive sustainment capability. The mission of the CSOC was to deliver an integrated simulation architecture to stimulate C4ISR systems in order to meet the training audience objectives. The ability to accurately evaluate simulation-C4ISR connectivity ensured the exercise director that the simulation feed was properly stimulating an operational C4ISR system. By verifying that all units were linked to the network, the CSOC provided assurance that the information was being disseminated properly and that problems could be anticipated and quickly solved

before detracting from training.

The partnership

CSOC Team. The DOS provided the CSOC's operations, simulation, interface and network personnel. A battle captain, assistant battle captain and liaison officers made up the core of command and control for the organization. This battle captain was responsible for maintaining visibility and situational awareness for the entire exercise network, with an emphasis on the simulations /local area network side of the exercise architecture. Those duties included:

- compiling updates on the status of the simulations LAN.
- supervising preparation of reports to exercise control.
- conducting shift change briefs.
- coordinating with the contact teams during simulations LAN and C4ISR issues.
- developing simulations Commanders Critical Information Requirements and troubleshooting procedures.

The assistant battle captain was responsible for monitoring the simulation local area network , management tools and initiating trouble shooting procedures. The liaison officer served as the CSOC's representative to the training audience, obtaining firsthand situational awareness on C4ISR system status.

The 5th Signal Command provided the CSOC's communications personnel. Their principal staff officer was a captain, along with a radio telephone operator. The captain was responsible for the tactical LAN side of the exercise architecture. Those duties included:

- compiling updates on the status of tactical LANs
- acquiring all communication tools used in CSOC
- coordinating with the training audience during tactical LAN and Army tactical command and control systems issues.
- developing communications CCIR and troubleshooting procedures.

The RTO was responsible for monitoring the tactical LAN management tool, command and control personal computer common operational picture and initiating trouble shooting procedures.

Joint Forces Command. During Unified Endeavor '05-2, the CSOC entered into a partnership with the USJFCOM Joint Warfighting Center's Technical Control. From co-directors for communications and simulations to embedded personnel, the marriage of the two organizations brought together experts from multiple organizations that ensured the successful preparation and execution of the mission rehearsal exercise. Much like the JWFC's technical control, the CSOC served as the technical center of gravity. In a larger distributed, joint exercise, the CSOC would "plug in" to JWFC's technical control and be USAREUR's lead technical agent representing the Army forces monitoring the local network and ensuring its integration into the joint force.

Digital system engineers. The CSOC did not respond to problems - it anticipated them. The synergy provided by a multi-functional staff allows them to correct problems in any of systems before they can affect the training. If there was a failure, the CSOC quickly dispatches the proper team to fix the problem. This team, designated Digital System Engineers, contained C4ISR SME personnel readily available to provide expertise in the application and use of the Army Battle Command Systems. The success of the training event depended on the ability of these individuals to troubleshoot in a timely manner any problems that arose in the connectivity of the architecture.

The IMD fulfilled the DSE management role of the Battle Command Branch within CSOC. This branch was developed to provide needed ABCS unit-level expertise. Besides the organic ABCS and C4I assets borrowed from IMD, additional ABCS expertise, in the form of DSEs, was obtained from the Army Program Executive Office command, control, and communications, tactical. These specialists were necessary to ensure proper integration of the individual ABCS into the total network architecture. They further assisted the training audience to better use the appropriate systems and to develop specific unit operating procedures and digital strategies.

The DSE team contained C4ISR SME whose mission is to assist in identification, isolation, and resolution of C4ISR system problems. Each engineer had a high level of specific software and hardware experience, C4ISR system as well as knowledge of particular communications protocols involved with C4ISR systems and simulation-C4ISR interface software and hardware.

The success of the training event depended on the ability of these individuals to anticipate and to troubleshoot in a timely manner any problems within the C4ISR architecture. The Battle Command Branch also included the G3-IMD systems integration team who are skilled and experienced system and software engineers who work closely with the CSOC simulations support team.

Their experience and in-depth knowledge of ABCS protocols, simulation-C4ISR interface software and hardware, and the communications protocols involved with C4ISR systems ensure a seamless network melding of ABCS C4I, communications and simulation systems.

Information Management Office. Network personnel managed and provided route summarization, IP conflict resolution, monitoring of bandwidth utilization, packet filtering, and scheduled the circuit for the wide area network. ISDN, T-1, and E-1 encrypted data circuits were provided for all exercise initiatives. The DOS network was a Tier level configuration which incorporates the latest technology in switched and routed networks. Network personnel were located at the Tier 1 level, where all

network monitoring agents were deployed to access the performance of protocols such as TCP/IP, UDP (Multicast, Unicast, and Broadcast), TELNET, FTP applications used during the exercise. Connectivity was provided to Tier 2 switched (both fiber and Ethernet) facilities down to Tier 3 the client user work station facilities incorporating all simulation models.

Information Assurance. The CSOC Information Assurance team provided on-site expertise to identify intrusions and analyze anomalies on the network. The CSOC IA team was a team of Spectrum SMEs, Remedy SMEs, network analysts and an IA analyst. The CSOC IA team coordinated the effort to ensure real world security of the network and provide excellent opportunity training. The CSOC IA team was divided into four cells.

The first cell consisted of two network analysts, and conducted scans on the network to ensure systems on the network were IAVA compliant and updated systems with IAVA patches. The Spectrum and Remedy SMEs in the second cell modeled and tracked the network. The Spectrum SME modeled all systems on the network to include servers, switches, routers, and links in the network. The Remedy SME entered and tracked all data for systems operating in a degraded or failed status and keeps track of trends. The third cell had one IA analyst to monitor the Intrusion Detection Systems and analyzed anomalies identified by the training and exercise audience. Lastly, there was another network analyst that monitors and maintains the routers and switches ensuring they remain operational throughout the exercise. Having the CSOC IA team in place gave the CSOC on-site expertise to identify intrusions and analyze anomalies on the network. Overall, this increases the ability to react, lessens reaction time, and provides immediate feedback as a significant part of the CSOC's rapid reaction and robust fix-it capability.

Training audience. A capable, well-structured tactical network should not require Soldier's involvement beyond skill level 10 troubleshooting procedures. While training, their focus should be on understanding and interpreting the information they receive from C4ISR systems. The high-tech nature of the digital Army has increased the complexity of today's tactical networks. The G6 section was responsible for maintaining that well-structured tactical network and minimizing the 'downtime" on the tactical side during an exercise. The G6 was supported by a team of contractors from various project management offices for individual C4ISR systems, plus a supplement of SMEs specifically supporting large exercises.

It was critical that the G6 had an effective plan to configure, secure, monitor, and, most importantly, maintain the tactical network. This plan needed to include a reliable communication links to the CSOC and their contracted SMEs. Thorough trouble shooting procedures, that follow a problem from beginning to end, were essential to minimize duplicating or wasting resources.

Network Operations and Security Center. The final part of the overall support of USASETAF was the movement of the 69th Signal Battalion Network Operations and Security Center to Camp Aachen for the exercise. The NOSC move was the first for the command as it executed the continuity of operations plan. As the training and simulation network and systems were being installed and checked, the NOSC set up shop using the 69th Signal Deployable Communications Package. The NOSC provided network monitoring information to both the CSOC and CJTF-76 Joint C4 Control Center, while also doing some impromptu training on the use of network management tools.

Tools

Monitoring. The tools used to monitor simulations, stimulation networks and C4ISR systems were critical components of the CSOC. Their purpose was to identify the root-cause of problems before they impacted the LAN, C4ISR systems or simulation performance. The applications used for this purpose were the Automated Distributed All-around Simulation Health Indicator, 'What's Up Gold' and Spectrum.

ADASHI is a Windows-based software application developed by the DOS simulation engineers. It served as a simulation health monitoring tool, to mitigate risk of simulation failure. ADASHI monitored the network by scanning user UDP (multicast, unicast, and broadcast), as well as sending a "Ping" to any Internet Protocol address to check for port connectivity. It can be accessed through a web browser and has the ability to generate simulation health reports, which provide readiness statistics of simulations. Every 60 seconds the web browser refreshes and delivers updated status on all systems selected for monitoring.

What's Up Gold is a commercial Windows-based software application used for network monitoring. This tool proactively monitors network availability and provides real-time notification of any specific failure. What's Up Gold sends "pings" to machines on network based on a user defined Ping rate, machine address and time-out rate.

Spectrum is a commercial Windows-based software application that is a single point of access to monitor, manage and maintain your entire distributed network infrastructure. Spectrum can be accessed from a web browser, at anytime from anywhere. It also uses "pings" to determine the status of machines on a LAN.

The Command and Control PC was used to monitor the common operational picture. All participating units consolidated information and observations into a COP. The COP operated on LandWarNet (Classified). The COP was distributed, and when combined with secure collaboration and messaging tools, provided users with a high level of awareness of the activities of the

CJTF. Information sharing occurred with all members of the CJTF, so both U.S. forces and other allied forces could act seamlessly. In doing so, the COP integrated planning, execution and provided an observation tool for the exercise.

Communication. The tools that were used to communicate amongst the various CSOC personnel were essential to meeting Bell's guidance for "rapid fault isolation" and "the means to communicate with our simulations contact teams." The dispersed nature of the contact teams created the demand for secure mobile communications during the exercise. Motorola XTS-5000 handheld radios were capable of filling this role. They provided the long range communications capability that the CSOC needed to immediately contact and direct the requested SME to the problem source.

The network supporting Lion Challenge 2005 was created by leveraging Program Manager-Installation Information Infrastructure Modernization Program and DOS-F building upgrades efforts at Camp Aachen, Grafenwöhr Training Center. DOS-F built a new Joint Operations Center training facility. Another major undertaking completed was the fiber infrastructure that created a permanent training network for units. The original plan called for completion in January 2005, but a quick change of mission forced an acceleration of building and installation. PM-I3MP reallocated re-sources to support the new requirement and provided fiber to all the permanent facilities on Camp Aachen.

Once the fiber and buildings were connected, a new challenge arose in building a miniature-city in one of the motor pools. In less than seven days, over 300 temporary buildings were positioned, powered, and wired to form "Lego Land." The 6981st Civilian Support Group, from the 2nd Signal Brigade, ran over 10 miles of cable, fiber, and wire to support over 300 users with LandWarNet (Unclass), LandWarNet (Class), and coalition networks, along with Defense Switch Network telephones.

The digital battlefield

The digital battlefield that exploits the benefits of the CSOC is an alliance of cooperating organizations and systems, which form a new construct for information management and training support. These cooperating systems join together to operationalize the technical capabilities of our simulations and communications in order to better serve the needs of the training audience by providing instantaneous information, rapid fault isolation and robust fix-it capability: the hallmarks of digital decision-making.

Organizational benefits will include:

- Faster access to a broader range of information and services;
- New and richer information in the context of a specific set of requirements to better support tactical and administrative decisions;
- Streamlined and simplified searching, reporting, logistics and tracking processes;
- Improved integration with internal organizational practices; and
- The opportunity to benefit from the full spectrum of information dominance.

Benefits to the Soldier/leader include:

- The opportunity to take part in a complex architecture for decision making at all levels without having to make major changes to existing organizations, technology or processes;
- Access to a wider range of information sharing resources;
- Knowledge about organizations and battlefield practices;
- The ability to respond and scale to the changing conditions of the battlefield with ease, speed and agility, as never before possible on the analog battlefield

In summary, the concept of CSOC, the partnerships in USAREUR and USJFCOM and the support of training the Military Decision Making Process on the Digital digital Battlefield battlefield holds the promise of creating a way to realize the full spectrum of information dominance.

Lessons learned

The ability of the CSOC to recognize malfunctioning systems focused the training audience on maintaining their systems, minimizing the "downtime." This capability also created aggregate data that could be analyzed to determine trends. During this period, refinement of procedures occurred as this new capability was imbedded into the exercise architecture. Initially, it was unclear to the training audience what the CSOC's reporting requirements, information flow and assistance methods were. The coordination improved as the exercises went on. Prior coordination and input into planning process is necessary to establish guidelines and eliminate confusion.

There were numerous lessons learned and information gathered that will increase the effectiveness of CSOC operations. CSOC must have the capability to monitor data in the exercise and C4ISR environment to ensure true and accurate passage of correct information. The CSOC must also employ an interdisciplinary approach (simulations, communications, SMEs and the training unit) to control, manage and solve end-to-end problems. Other lessons learned included:

- ✓ Redundant C4ISR and simulation systems are necessary
- ✓ The CSOC required the ability to monitor the data being sent from the simulation to the C4ISR systems
- ✓ LNO teams at unit Command Posts are absolutely essential
- ✓ C4ISR experts are required
- ✓ CSOC concept was successful and a key element to achieving a 99.8 percent simulation operational rate

The development of a Digital Integration Facility at Grafenwöhr Training Area enabled continuous

development and testing of simulations, interfaces, networks and C4ISR systems, to truly verify the C4ISR "correctness." Improvements currently are being developed to the monitoring tools to expand their capabilities. This increased capability will include joint simulations, interfaces and C4ISR systems. Better tools and accuracy will improve our ability to train units. Infrastructure enhancements at GTA will provide a world-class simulations and communications operations center. Operating together on a permanent basis provides a dedicated area from which to run exercise operations. The CSOC capability and organization structure must be formally incorporated as a component of the exercise agreement established with the training audience. By doing this, it allows the command of the training audience to actively choose to evaluate their C4ISR use, if that is an objective of the exercise.

The CSOC must be incorporated into a larger information gathering process, Knowledge Management, to show the relevancy of information and data, and determine metrics for C4ISR use and simulations participation. These metrics will have greater applicability throughout both the Army and Joint training community, and also the simulations/ communications community.

Conclusion

The ability to digitally monitor the entire network was a groundbreaking achievement for USAREUR, the 7th Army Training Command, Directorate of Simulations, the 5th Signal Command, the 1st Infantry Division and the Southern European Task Force. The partnership between simulation, communication, training audience, C4ISR experts, Battle Command Training Program and Joint Forces Command was critical to the success of these training events.

The result of creating the CSOC was a continuous real-time evaluation of the integrated simulation-C4ISR exercise design. Centralizing the tools used by the CSOC (monitoring, communication and reporting), allowed anticipation of potential problems and rapid dissemination of simulation information to exercise key leaders. This facilitated resolution of simulation-C4ISR problems and minimized lost training time.

At the intersection of decision-making and technology, the organization, processes and systems used during Danger Focus II, Freedom Resolve I, Lion Challenge 2005 and Unified Endeavour 05-02 are being developed to benefit training in USAREUR, the Army and across the joint community. "This is called winning a battle and becoming stronger." -- **Sun Tzu**.

Contributors to this article are: LTC Mark Eastman, deputy director of simulation, Expeditionary Battle Command Center, 7th Army Training Command, Grafenwoehr, Germany; MAJ Bobby E. Dodd, chief, Information Management Division, HQ USAREUR/7A, G3, Heidelberg, Germany; MAJ Dwight Morgan, information security officer; Deputy Chief of Staff, G3, 5th Signal Command Mannheim, Germany; MAJ Willie J. Locke, 69th Signal Battalion S3, Wuerzburg, Gremany; CPT James D. Watts, systems operations officer, Expeditionary Battle Command Center; 7th Army Training Command, Grafewoehr, Germany; and Thomas Lasch, simulations branch chief, Expeditionary Battle Command Center, 7th Army Training Command, Grafenwoehr, Germany.

ACRONYM QUICKSCAN

1ID – 1st Infantry Division
7ATC – 7th Army Training Center
ABCS – Army Battle Command System
ADASHI – Automated Distributed All-around Simulation Health Indicator
C2PC – Command and Control PC
C4 – Command, Control, Communications, and Computers
C4ISR – Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance
CCIR – Commanders Critical Information Requirements
CJTF-76 – Combined Joint Task Force-76
COP – Common Operational Picture
CSOC – Communications Simulations Operations Center
DOS – Directorate of Simulations
DSE – Digital System Engineer
DSN – Defense Switch Network
EXCON – Exercise Control
GTA – Grafenwoehr Training Area
IA – Information Assurance
IAVA – Information Assurance Vulnerability Assessment
IMD – Information Management Division
ISDN – Integrated Service Digital Network
JOC – Joint Operations Center
JWFC – Joint Warfighting Center
LAN – Local Area Network
LNO – Liaison Officer
NOSC – Network Operations and Security Center
PEO-C3T – Program Executive Office Command, Control and Communications, Tactical
PMO – project management office
PM-I3MP – Program Manager-Installation Information Infrastructure Modernization Program
RTO – radio telephone operator
SME – subject matter expert
TCP/IP – Terminal Control Program/ Internet Protocol
UDP – Universal Data Package
USAREUR – United States Army Europe
USASETAF – United States Army Southern European Task Force
USJFCOM - United States Joint Forces Command

Employing the signal company in a Unit of Action

By CPT Brian "Jake" Jacobson

The Army is transforming and that is how the signal company supports the Brigade Combat Team or Unit of Action. Right now commanders in transition are experiencing friction between the Brigade Troops Battalion, the brigade S6, and the brigade commander. In order to alleviate this friction, all parties must know their role in the UA or BCT and stay in their respective lanes.

The doctrine written to cover the signal company is identified in *Field Manual 3-90.61*.

While serving as an observer controller at the Joint Readiness Training Center and also being a part of the transition myself as a commander in the 3rd Infantry Division, I wrote this article to highlight some observations and provide recommendations for current and future commanders.

The UA signal company's purpose has not changed from the day it was task organized as a separate company to a BCT to its assignment under the Brigade Troops Battalion within that same brigade. The makeup of the company changed to better support independence in a non-contiguous operating environment, but the mission remained the same; provide the brigade commander voice and data communications.

Prior to the transition the company would provide a platoon's worth of Mobile Subscriber Equipment to support the brigade. The other half of the company would replicate support of division command posts when operating at any of the National Training Centers. The division would lend a hand with a small team of experts from the signal battalion operations staff and division signal staff to aid in network and data management. The company commander would be the signal battalion liaison officer on the ground with the BCT. She, or he, would provide information to the signal task force on future network changes based on brigade operations, then the small signal staff would advise that commander on feasibility of support based on the mission planning tools they organically had.

The makeup of the company changed to better support independence in a non-contiguous operating environment, but the mission remained the same; provide the brigade commander voice and data communications.

Knowing this, why is it so hard to figure out how to operate as a UA signal company? The mission has not changed with the exception of being tagged the additional responsibility of providing frequency modulation range extension for the brigade with retransmission teams and automation security support.

We now have our own signal network operations staff, information assurance/ server management personnel, communications-security custodian, frequency manager, and electronic maintenance personnel. We lost in the process, our extension teams that are now directly under control of the battalions they support placing an extra burden on us to ensure they are properly trained and maintained even though they belong to somebody else. Through the process of reorganization a lot seems to have changed, but the mission of a company commander fundamentally remains the same.

Command for a signal officer doesn't take place in a little tent with a digital non-secure voice terminal and a laptop anymore. Command is conducted from a Network Operations and Security Center co-located with the brigade signal officer in the Brigade Tactical Operations Center. The modified table of organization and equipment was designed to where the brigade signal officer owns all the senior signal leadership, but the company has the muscle.

They plan, commanders execute, and we as a team provide the brigade with means to command and control more effectively in the 21st Century. The brigade builds the servers and we maintain them. The brigade gives us the requirement to extend FM and we execute. This is what we have done in the past and will continue to do. Command is conducted from the NOSC where we can make informed and timely decisions based on continuous situational awareness.

Hate it or love it, the company commander is the assistant brigade signal officer. Commanders who just want to sit in the JNN/FES/Node Center operations tent and wait for something to break are not contributing to the fight. Commanders who task organize their company giving up most, if not all, of his or her assets to the brigade signal officer don't want to be and shouldn't be in

command.

Newly published *FM 3-90.61* discusses the responsibilities of the signal company. According to paragraph 2-43 from the same FM the signal company commander is charged us the following tasks:

2-43. The network control center provides 24-hour connectivity and NETOPS support for the HBCT information network, as an extension of the GIG. This element provides operational elements designed to engineer, install, operate, maintain, and defend the HBCT information network supporting operations as an integral part of the HBCT. The NSC extends LandWarNet services to the HBCT operating in a joint operational area and subordinate elements, and provides network management capabilities.

The NSC, in coordination with the HBCT S6:

♦ Provides reach back connectivity, both inter- and intra- UEy, through organic TACSAT assets.

♦Provides range extension of the HBCT voice/data communications.

♦Provides WAN network management capabilities. Establishes primary TOC voice/video/data and Defense Information Systems Network services.

♦Performs limited signal electronic maintenance.

♦Coordinates, plans, and manages HBCT frequency spectrum both internal and external to the HBCT.

♦Plans and manages the HBCT information network with the strategic NETCOM supporting brigade, the UEx network commander, the regional DISA support team, or the supported J6.

♦ICW the HBCT S6 and the strategic supporting arm of the GIG, plans and manages HBCT IA systems (firewalls, intrusion detection systems, and access control lists).

♦Plans and manages HBCT content staging/Information Dissemination Management procedures (user profiles, file and user priorities, and dissemination policies).

♦Plans and manages all IA/CND operations to include but not limited to: key management distribution, IAVA compliance, and Intrusion Detection Device Management and operations, and compliance with all directives outlined in AR 25-2.

♦Deploys range extension assets to maintain connectivity and reliability of the HBCT communications network.

♦Evaluates network requirements to determine needs for unmanned aerial vehicles and communications relay requirements.

♦Aides in the execution of all NETOPS responsibilities in support of the unit mission

Some Brigade Troop Battalion commanders fear that their company commander is nothing more than the coffee runner for the brigade signal officer and need to understand the Signal commander's role in the big picture.

Signal commanders shoot, move, and communicate from the Network Operations and Security Center; their weapon is a laptop; their vehicle is the data pipe; and their radio is an IP phone.

We as signaleers plan, collaborate, engineer, organize, manage, and monitor through the information systems that we establish with our data terminals. We cannot drive across the battlefield and monitor our data systems from the same vehicle like Infantry battalion and company commanders can monitor their combat systems through Blue Force Tracker and FM.

Unlike our peers in other branches, there is no wire to breach, no bunkers to destroy, no fire missions to call as signal commanders, just links to put in and servers to manage so they (the maneuver and support commanders) can get graphics, orders, and e-mail.

Signal commanders shoot, move, and communicate from the Network Operations and Security Center; their weapon is a laptop; their vehicle is the data pipe; and their radio is an IP phone.

Now that we know "what" we are supposed to do; the question is "how"? For those who lack the knowledge or imagination to run the team, here is a suggestion without getting too much into the weeds. Commanders are the composer of the orchestra and need to create the environment to effectively direct the different instruments. Organize a NOSC similar to a battalion command Tactical Operations Center, but instead of fire support, military intelligence, and engineer desks, create Information Assurance, Signal Network Management, and automation/server management desks.

The TOC will still need a battle captain so use the platoon leaders, warrant officer, or senior non-commissioned officers to supervise the NOSC. This will free the commander to execute the many administrative tasks and employ the Military Decision Making Process that he/she often has to conduct and there will still be someone present with the responsibility of battle tracking and maintaining situational awareness in the commander and brigade Signal officer's absence.

The automation/ Information Assurance team should combine with the brigade signal section's geeks such as the Functional Area 53 captain and network tech to handle server creation, management, maintenance, and electronic security.

Additionally, the team should use both the junior Information Systems Operator-Analyst (25B) and Signal Support Systems Specialist (25U) Soldiers to run a help desk in order to track and resolve the various signal challenges in the brigade. Trouble tickets are created at this help desk and should be sorted then prioritized by the battle captain who will track the progress

and update a ticket web page linked to the brigade web site so users can track their individual request.

I said a "battalion TOC" style setup, and in this Network Operations and Security Center needs to be fundamentally the same tracking charts, situational awareness tools, and communication devices to effectively battle track communication assets as if they were combat systems. The Signal team will be held accountable for the success and failure of communications regardless of ownership.

So on the BFT, MCS-Light and analog map board there should be a marking system to identify the subordinate battalion Retransmission teams, Mobile Tactical Terminals, Net Control Station-Enhanced Position Location System, Joint Network Node, Command Post Node, Remote Access Unit, Small Extension Node, etc., this situational awareness will aid in the commander's ability to advise the brigade signal officer or brigade commander on a appropriate course of action to remedy any signal loss within the BCT.

... Situational awareness will aid in the commander's ability to advise the brigade signal officer or brigade commander on a appropriate course of action to remedy any signal loss within the BCT.

The mission of the signal company in a BCT has changed in some ways, but we are still charged with the same basic responsibility as before, and that is to provide voice and data communications for the brigade. We are now resourced to be more independent with additions to the company that were only previously found in the division signal office, Division Automation Management office, and Signal Battalion Operations sections. Signal company commanders must take a step forward into this larger role. Successful operations require us to set up a Network Operations and Security Center as part of the Brigade Signal Cell.

We must educate our battalion commanders and develop positive relationships with the brigade signal officer in order to better provide the brigade with the critical communications required to be successful in combat.

CPT Jacobson is currently assigned to the Joint Readiness Training Center as a Signal Observer Controller. Jacobson received his commission from Mankato State University and assigned to the 25th Infantry Division where he served as a company executive officer, Forced Entry Switch Platoon Leader, and Infantry Battalion S6. Following the Signal Captains Career Course he was assigned to the 3rd Infantry Division's 3rd Squadron 7th U.S Cavalry as an S6 until he took command of C Company 123rd Signal Battalion and served as they were transitioned into A Company, 3rd Brigade Troops Battalion.

Acronym QuickScan

3ID – 3rd Infantry Division
BCT – Brigade Combat Team
BTB – Brigade Troops Battalion
CPN – Command Post Node
COMSEC – Communications Security
DISN – Defense Information Systems Network
DNVT – Digital Non-Secure Voice Terminal
EPLRS – Enhanced Position Location Reporting System
FES – Forced Entry Switch
G6 – Division Signal Staff Section
GIG – Global Information Grid
HBCT – Heavy Brigade Combat Team
IA – information assurance
IDDM – Intrusion Detection Device Management
IDM – Information Dissemination Management
IAVA – Information Assurance and Vulnerability Assessment
JNN – Joint Network Node
MCS-Light – Maneuver Control System
MDMP – Military Decision Making Process
MSE – Mobile Subscriber Equipment
MTO&E – Modified Table of Organization & Equipment
NCS-E – Net Control Station-Enhanced Position Location System
NOSC – Network Operations and Security Center
RAU – Remote Access Unit
S3 – Signal Battalion Operations Staff
S6 – Signal Staff Section
SA – Situational Awareness
SEN – Small Extension Node
TOC – Tactical Operations Center
UA – Unit of Action
UAV – unmanned aerial vehicle
WAN – wide area network

Communicating for SASO

employs cutting edge solutions

By MAJ Jerry D. Marlatt Jr.

Introduction:

Communications for Stability and Support Operations requires a new approach that seamlessly integrates the tactical and strategic worlds while retaining the ability to rapidly support tactical, primarily offensive, operations. During Operation Iraqi Freedom II, the 13th Signal Battalion employed several innovative and cutting edge solutions to meet the extensive and challenging C2 requirements associated with supporting Task Force Baghdad, led by the 1st Cavalry Division, in an unpredictable counter-insurgency fight. The battalion's initiatives led the implementation of the Army's first true 'data only' network based on Voice over Internet Protocol telephony, enabled the battalion to support the vast user requirements of TF Baghdad without increasing the requirement for additional signal elements, and extended strategic services across a tactical network like never before. In short, our approach enabled TF Baghdad's access to the Global Information Grid to become a reality today.

TF Baghdad:

Task Force Baghdad's mission was to provide a secure and stable environment in the Baghdad area of operations – a battle space totaling over 2,600 square kilometers of urban and rural terrain. In order to meet the extensive troop requirements associated with securing a city of more than seven million people, the size of the division was dramatically increased. By January 2005, TF Baghdad consisted of 11 Army and Marine brigade-sized elements comprised of more than 60 battalions – a huge Division Task Force consisting of over 58,000 Soldiers and Marines that far exceeded the Division's normal strength of 17,000. Fortunately, the TF Baghdad footprint had been reduced to six major and five minor base camps following the departure of the 1st Armored Division in March 2004. This force consolidation provided a unique opportunity to build a reliable and redundant network.

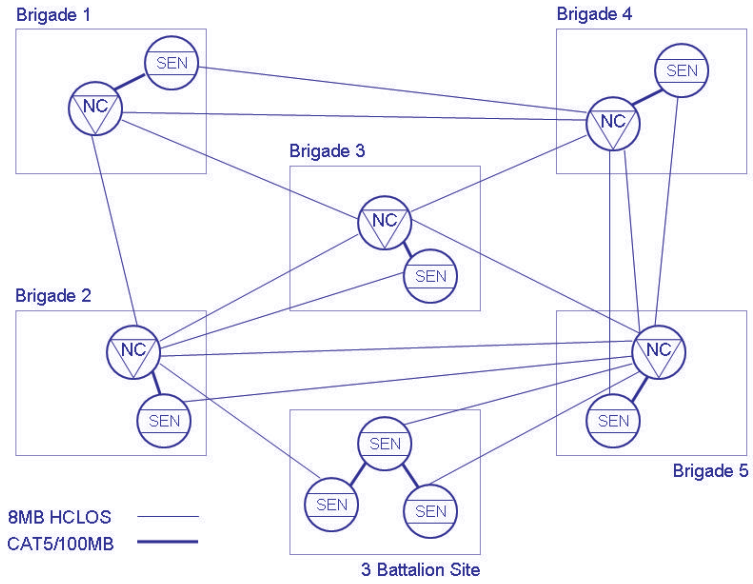

Fig. 1 Establishing a 'Dual Homed' Data Network Headquarters

To support TF Baghdad, the 13th Signal Battalion (TF Mercury), was augmented with several other units. At its peak, TF Mercury consisted of nine assigned, attached, or TACON companies with approximately 1,200 Soldiers supporting over 110 command posts – a level of support equivalent to that of 4.5 division signal battalions. Attached or TACON units consisted of A/28 Signal Battalion, 28th Infantry Division (Pennsylvania National Guard), B/10 Signal Battalion, 10th Mountain Division (Fort Drum, N.Y.), and B/134 Signal Battalion, 34th Infantry Division (Minnesota National Guard). Additionally, elements from three other Corps Signal battalions supported TF Baghdad at various times of the deployment.

Unique SASO communications requirements:

The 13th Signal Battalion entered Baghdad during a unique period of the conflict. The war had transitioned from strictly combat operations to a counter-insurgency fight with an emerging emphasis on rebuilding the nation's essential services and establishing legitimate Iraqi Security Forces. Instead of being dispersed across the city, TF Baghdad consolidated its footprint into six major Forward Operating Bases. While tactical operations 'outside the wire' remained the norm, the establishment of these FOBs presented several unique C2 challenges and just as many unique

opportunities.

Perhaps the most unique challenge of operating from set FOBs was leader expectations – the maneuver commander's simply expected "garrison" type communications support and quality of service. Commanders, from brigade to company level, expected reliable SIPRNET, NIPRNET, DSN, and secure voice capabilities. In short, leaders expected the same quality of service – and perhaps even better – than they had at home station. Brigade and battalion commanders expected to contact their company commanders with a telephone or via email - not on a radio. They expected to be able to use Exchange email just as they did in a CONUS environment. And they expected to see real time situational awareness traffic from multiple platforms in a common operating picture. In addition to an extremely high level of expectation, the division required SIPRNET not only down to the battalion level, but to the company level as well. This significant change of signal doctrine far exceeded the capabilities of TF Mercury – even with the additional signal companies we received.

Another major challenge of SASO is the significant number of non-traditional users that emerge and that require support. These new users, all with legitimate requirements, usually came with little or no organic signal support. Examples of these non-traditional users include the Base Defense Operation Centers, Mayor Cells, legal offices, fire stations, guard points, medical and dining facilities. Additionally, the division received units from other services such as a Navy SEAL detachment and an Air Force Engineer Detachment to further increase the number of units that required support.

The last major challenge presented by a SASO environment was the large bandwidth requirements of the Division digitized command and control tools. These tools, primarily the new Command Post of the Future, would require unprecedented bandwidth to support. Initial estimates for CPOF alone stated that the system required, on average, four Mb/s to operate – well above the capabilities of conventional MSE.

Our approach:

Circuit switching technology has been the fabric of tactical telephony since the 1970s. However, our vision was to transition to a data-only network that eliminated reliance on the division's archaic tactical telephones and provided almost unlimited bandwidth to our users – whether located on a FOB or while conducting tactical operations. In order to accomplish this task, TF Mercury leveraged the capabilities of its High Capacity Line-of-Site and Asynchronous Transfer Mode equipment, coupled with commercial equipment such as Codem CTM-100s, to provide at least an eight MB/s pipe to our subscribers. Voice over Internet Protocol telephony was used to replace the antiquated and inconsistent Digital Non-secure Voice Terminal tactical telephones.

Reach back communications was essential to providing the task force the communications required to conduct business out of theater. We set out to provide big pipes and multiple services and did so by building a 'data package' at the DMAIN and DREAR. We developed the network for our mission requirements by installing central reach back points in order to disseminate services. Satellite links to Bahrain and Al Salayah provided TF Baghdad with 4MB/s total bandwidth of NIPRNET access, SIPRNET, Serial VTC, and DSN.

To free MSE assets and provide reliable, high bandwidth LANs, we installed over 20 miles of fiber optic cabling and commercial data networking equipment at Camps Liberty, Taji, and Falcon.

Building a Data Only Network — taking bandwidth out of the equation

The 13th Signal Battalion is one of four active duty ATM Mobile Subscriber Equipment equipped signal battalions in the Army. Due to its speed, ATM switching comprises the backbone of the global information grid; because switching processes are inherently faster than routed processes, data throughout the task force flowed at incredible speeds, on average, 10 times the speed of THSDN MSE assets, with bandwidth between two and eight megabits per second (MB/s). Data flowed to brigade headquarters in around six milliseconds and to battalions in around 13. ATM was instrumental in the unit's ability to support the high bandwidth and low data latency requirements sought by TF Baghdad.

The standard employment of division Signal battalion assets provides services to the Division Main and Rear, Assault Command Post, three brigade combat teams, aviation brigade, division artillery, four support battalions, three aviation battalions, and the division cavalry squadron. Instead of employing Node Centers Switches as tandem switches in remote locations as is standard practice, the task force placed switches in direct support of BCT headquarters in order to provide large capacity (8 MB/s) data trunks (SIPRNET, NIPRNET, & VoIP) and tactical telephones in the form of DNVTs to brigade tactical operations centers. A 'dual-home' small extension node switch was co-located with each brigade NCS, providing an 8 MB/s redundant link. The 'dual home' was accomplished by running CAT5 cabling between both tactical switches' routers – a move that served the task force well throughout the battle space, ensuring uninterrupted service to critical applications (Fig. 1).

VoIP

This technology was a huge success with maneuver commanders because of its superior call clarity and advanced features, such as directory services, conferencing, and caller ID. Therefore, we pushed SIPRNET and NIPRNET VoIP down to the battalion level, thereby implementing the largest network in the Department of the Army and the

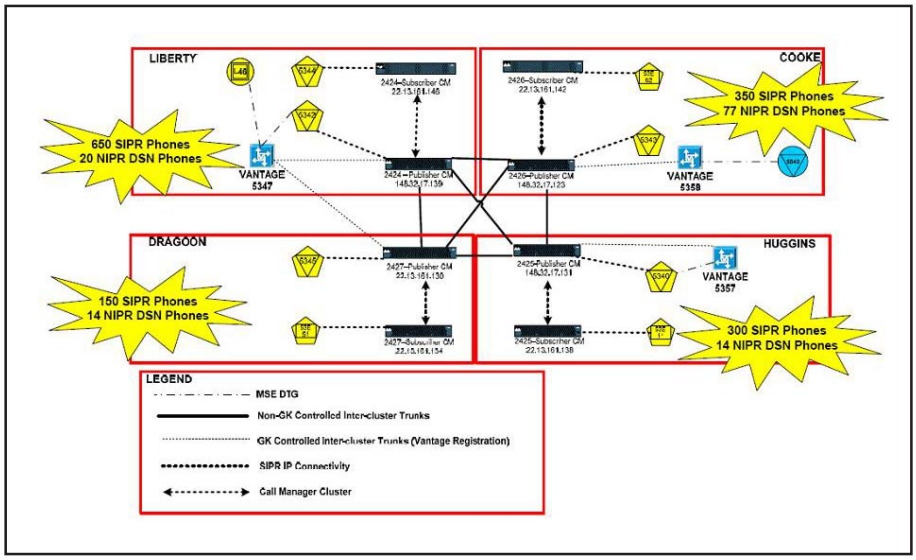

Fig. 2 Task Force Mercury SIPR VoIP Architecture

first ever large scale implementation in a tactical environment. At its peak, the division processed over 35,000 SIPR VoIP phone calls a day.

Cisco call managers are the heart of the VoIP network, each capable of providing 2,500 VoIP telephones. Because phones must work 24/7 in a combat environment, we endeavored to provide a redundant architecture to provide uninterrupted voice communications. This was accomplished (Fig. 2) by installing a Call Manger Publisher and Subscriber at four of our FOBs. The Publisher is the device that processes calls and supports advanced features, provides directory services, and provides logical connectivity to other Call Manager Publishers. The Call Manager Subscribers exist to provide a layer of redundancy. If a publisher ever failed, due to loss of power, battle damage, etc., the subscriber would take over in approximately 40 seconds with all the features of a publisher.

Each brigade level headquarters received 25 (digital) Cisco 7940 VoIP phones and another 24 analogue plain old telephone system phones for that building and the surrounding area. The POTS phones functioned as VoIP with the assistance of VoIP Gateway devices – Cisco VG-248s providing 48 POTS phones, or Cisco VG-224s providing 24 POTS phones. This was the most cost efficient way to supply phones for large organizations. Battalions were provided 12 Cisco 7940 phones. Additionally, for low density requirements, analogue telephone adaptors (ATA-188) were used to transform standard POTS phones to VoIP. ATAs provide two phones per device as well as providing SIPR/NIPR access to one computer.

As SIPR cannot be run everywhere and to facilitate coordination with home station elements, NIPR VoIP was also pushed to each battalion and users who, for security reasons could not receive a SIPR connection. Each brigade received four NIPR DSN phones and each battalion received two. These phones were invaluable for coordinating redeployment, contact with family readiness groups, and for casualty notification.

NIPR (DSN) VoIP proved to be a combat multiplier. NIPR DSN connectivity was accomplished by connecting two T1s off REDCOM IGX analogue voice switches at the DMAIN and DREAR to Cisco ITS routers, which tied into NIPR call managers.

TF Mercury installed three VANTAGE switches throughout the area of operations, providing a robust VoIP to DNVT gateway.

Fiber network

There is a plan to commercialize military installations in Iraq; however, after almost two years, the formal commercialization program is still in its infancy. To fill the gap between formal commercialization and current realities and subscriber demands, the battalion installed a permanent fiber optic network at Camps Liberty, Taji, and Falcon.

Camp Liberty (formally Camp Victory North) was home to the DMAIN, three brigade combat teams, five separate battalions, and a host of garrison activities. Working with the defense contractor General Dynamics, the task force procured data networking equipment and fiber optic cabling, and obtained engineer support to dig trenches for the conduit that would house the fiber and to install manholes locally fabricated. The Task Force Mercury Cable Team, augmented with Soldiers from throughout the task force, laid a permanent fiber infrastructure and terminated it into fiber patch panels, while automation Soldiers installed the networking equipment.

The DREAR at Taji called for a different implementation due to the layout of the FOB. Occurring nearly simultaneously to the Camp Liberty effort, contractors installed the fiber optic cabling overhead, attaching it to poles the task force procured. The inside plant was identical to that at Camp Liberty, with the same Cisco networking gear comprising the heart of the SIPRNET and NIPRNET LAN. To manage the Taji network, Task Force Mercury set up a technical control facility to oversee the reach back (commercial) satellite, LANs, and SIPRNET and NIPRNET VoIP call managers.

The commercialization projects resulted in 47 MSE assets coming out of system – nearly two division signal battalions worth of equipment. However, the continuous demand for MSE assets called for their use elsewhere in the battle space. The "savings" we anticipated from the fiber optic networks never materialized. As commercialization

allowed assets to come out of system, they quickly received new missions to support out of sector combat missions and non-traditional users in TF Baghdad.

Company SIPR empowering the CAVNET

Some of the MSE assets freed up from the fiber networks allowed the task force to provide the first-ever SIPRNET capability at the company level. With this capability, the division improved its knowledge management processes by providing data communications to each company so that users could have access and participate in the CAVNET, a forum designed to quickly transfer tactics, techniques, and procedures from one sector to another. Instead of gathering TTPs for the next war, company commanders could share lessons learned in preparation for the next patrol.

Vignettes illustrating key points:

On several occasions Task Force Mercury supported 1CD elements operating out of sector and in non-traditional locations in and around Baghdad. To support major combat operations in Fallujah, the battalion relocated an A/28 SIG THSDN Node Center from Camp Liberty to Abu Gharayb prison and the ACPs Contingency package and 8MB/s dual home SEN supporting one of the division's BCTs to a FOB between Baghdad and Fallujah.

An additional SEN deployed to the heart of Fallujah during the initial assault on the city, providing voice and critical data to this unit 30 minutes after occupying their site. Other SENs supported Marine elements charged with interdicting anti-Iraqi forces, jumping locations multiple times each day. In each instance, brigade and battalion headquarters maintained their SIPR and NIPR VoIP capability and the advanced services the technology provides.

The historic Iraqi election held at the end of January 2005 called for non-traditional implementation of MSE assets. The task force located a Contingency Switch and ATM and THSDN SENs at the Baghdad Police headquarters and the Eastern and Western District Police headquarters, all in very urban terrain amidst the local populace. CPOF and associated VoIP over the CPOF terminals served as the C2 means to facilitate TF Baghdad's election support. Once again, VoIP proved priceless, as SIPR VoIP provided intra-division coordination, while NIPR VoIP provided connectivity to government agencies charged with collecting and moving ballots.

Conclusion/Way ahead:

One final consideration for future VoIP implementation is multi-level precedence and preemption. We were able to circumvent the requirement for MLPP 'in-house' by relying on caller ID and call forwarding to ensure critical calls were received. In the future, the tactical and strategic worlds must provide a seamless MLPP solution to ensure critical calls from outside local networks are recognized and processed by SIPR and NIPR VoIP instruments.

Operation Iraqi Freedom II was a stability and support operation requiring garrison quality tactical communication systems that allowed Task Force Baghdad to command and control forces engaged in combat, direct efforts to improve the local sewer, water, electricity, and trash situation, train Iraqi security forces, and facilitate the first free election in the nation's history. The non-standard use of MSE to support critical subscribers, the installation of fiber optic networks at the DMAIN and DREAR, and the widespread implementation of SIPR and NIPR VoIP service made all the above possible and provided the tactical commander unprecedented tools to command and control his forces.

Commercial-off-the-shelf technologies will continue to find their way to the battlefield and our resourceful Signal Soldiers will continue to push the envelope to give the best possible support to the warfighter. Our Soldiers demand and deserve nothing less.

MAJ Jerry D. Marlatt Jr. is currently serving as the 13th Signal Battalion Operations Officer, having recently redeployed from a 13 month stint in Iraq as part of Operation Iraqi Freedom II. He is a graduate of the US Army Command and General Staff College, the Marine Corps Command and Control Systems course, and the Signal Officer Basic course and has served in numerous tactical communications billets.

Acronym QuickScan

1CD – 1st Cavalry Division
ACP – Assault Command Post
ATM – Asynchronous Transfer Mode
BCT – Brigade Combat Team
COP – Common Operating Picture
CPOF – Command Post of the Future
DMAIN – Division Main
DNVT – Digital Non-secure Voice Terminal
DREAR – Division Rear
DSN – Defense Switched Network
FOB – Forward Operating Base
GIG – Global Information Grid
HCLOS – High Capacity Line of Site
ISF – Iraqi Security Forces
MLPP – Multi-level Precedence and Preemption
MSE – mobile subscriber equipment
NCS – Node Center Switch
POTS – Plain Old Telephone System
SASO – Stability and Support Operations
SEN – Small Extension Node Switch
TACON – Tactical Control
THSDN – Tactical High Speed Data Network
TOC – Tactical Operations Center
TTPs - tactics, techniques, and procedures
VoIP – Voice over Internet Protocol

335th Theater Signal Command

ROVING SANDS 2005

The 335th TSC successfully installed, operated, and maintained the communications architecture for the Joint Interoperability Exercise, Joint Red Flag 2005.

The expertise of the Soldiers, Sailors, Marines, Airmen, and Civilians of Roving Sands 2005 helped improve the efficiency, overall effectiveness, and integration of aviation and theater ballistic missile defenses.

Roving Sands 2005

335th Theater Signal Command:
Commanding General – MG Rip Detamore
Deputy Commanding General – BG Roger Ward
Command Executive Officer – COL Wayne Morgan
Roving Sands '05 Communications Exercise Director – COL Charles Nichols
335th TSC Public Affairs Officer – CPT Greg Majewski
335th TSC PANCOIC – SSG Eric Connor
359th Signal Brigade Public Affairs Officer – CPT Tim Clark

Photo credits:
982nd Signal Company (COMCAM), CPT Greg Majewski, CPT Tim Clark, SPC Armando Monroig, AFC Trina Flannagan, LT Sean Passmore

RS05 exercise logo: created by SPC Earl Grayson, 335th TSC

Editorial note: most of the articles for this edition of the *Army Communicator* were written and published during the exercise from March 7 – April 2, 2005, in other Signal, Army, local, and national publications.

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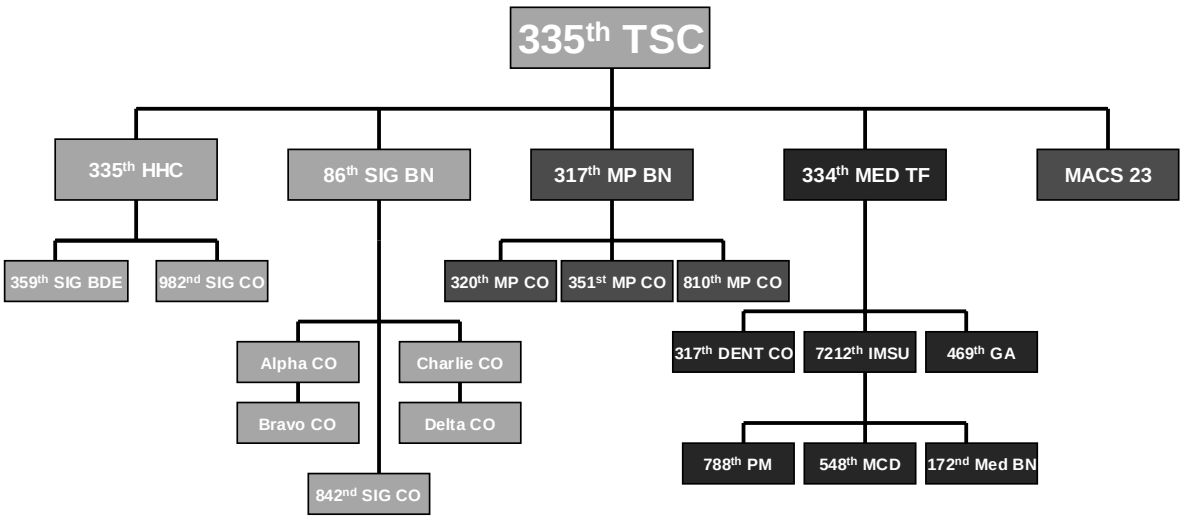
842nd Signal Company	Milton, Fla.
982nd Signal Company (Combat Camera)	East Point, Ga.
86th Signal Battalion	Fort Huachuca, Ariz.
23rd Marine Air Control Squadron (USMC)	Buckley Air Force Base, Colo.
Regional Interface Control Cell (FORSCOM)	Fort McPherson, Ga.
252nd Combat Communications Group (USAF)	Washington Air National Guard
272nd Combat Communications Squadron (USAF)	Oregon Air National Guard
334th Medical Task Force	Minnesota
317th MP Battalion	Florida

SIGNAL TASK ORGANIZATION



Legend:
Orange = Signal Assets
Green = Force Protection support
Maroon = Medical support
Red = Air surveillance support

335th TSC commander's view

By MG Lowell C. "Rip" Detamore

The 335th Theater Signal Command continues its wartime role in Iraq and Kuwait by providing the Army strategic composite communications and networking in the Southwest Asia area of operations.

Our systems and Soldiers have worked superbly during Operation Iraqi Freedom and Operation Enduring Freedom. I am very pleased with how our network came together and continues to serve the warfighter.

We have a number of dedicated citizen Soldiers who have volunteered to go to the theater to help meet our wartime commitments, thus allowing the remainder of the command to keep their skills sharp by attending Roving Sands 2005.

Our command is a unique blend of active duty, Reserve, and civilian contractors. It's a true illustration of what an 'Army of One' is all about. We built and continue to maintain the largest telecommunications system in the history of warfare in Kuwait and Iraq. The lessons learned from our experiences in Iraq and Southwest Asia were put to use at RS05.

Joint exercises like RS05 are extremely important because it's exactly how we operate in wartime. The better we can plan and work together as a total joint force, the better we will be in combat. Advances in communications and data architectures have transformed the battlefield, providing instant access to information for the warfighter. We communicate across the force both jointly and combined. The Army, Navy, Air Force, and Marines all participated in RS05, communicating seamlessly in a joint environment. British, Canadian, and German forces also participated in RS05 as part of the combined environment, like North Atlantic Treaty Organization and coalition forces operating in the Southwest Asia Theater of Operations.

We are proud that the 324th Signal Battalion is the first USAR unit to receive the 85D and 93C tactical satellite shelters which greatly enhance its communication capabilities to the warfighter. As the unit transforms to the Integrated Theater Signal Battalion concept, this newest version of Satellite Communications equipment introduces state of the art long haul communications into the Army Reserve. We train like we fight!

Our signal Soldiers are some of the best and brightest in the telecommunications industry. The combatant commander who controls and maintains the best situational awareness and uses information decisively wins battles. As part of command, control, communications, computers, information, surveillance, and reconnaissance our technology gives battlefield commanders rapid communication and synchronization capabilities unmatched by our adversaries.

We also remain vigilant in combating cyber attacks. Our Soldiers ensure our networks use the latest technologies, antivirus, and firewall to protect our networks from all threats while increasing information assurance.

Thanks to a great team of

'Advances in communications and data architectures have transformed the battlefield, providing instant access to information for the warfighter.'

MG Lowell C. "Rip" Detamore shakes hands with SGT Newsum, 334th Medical Task Force, at Camp McGregor.

signal warriors – Ready Lightning!

MG Lowell C. "Rip" Detamore began his military career in March 1969, commissioned as a second lieutenant in the United States Army.

He is a graduate of the U.S. Army Signal School, Fort Gordon, Ga. His military education also includes the following: Microwave Radio Systems Officer Course; Electronic Warfare Staff Officer Course; Command, Control, Communication and Intelligence Course; Quartermaster Advanced Course; Ordnance Advanced Course; Command and General Staff College; Logistics Executive Development Course; Force Development Officer Course; and, the U.S. Army War College. Detamore's civilian education includes a Bachelor of Science Degree in education from Auburn University and a Master of Science Degree in systems management from the University of Southern California.

Before his current assignment as the commanding general, Detamore served as the unit's deputy commander. Preceding the assignment as deputy commander, he served on active duty as the deputy chief of staff, information management, Third United States Army, Deputy G6, U.S. Army Central Command, Fort McPherson, Ga. Detamore has served in numerous active and Active Reserve command and staff positions, including: Chief of Staff, 311th Theater Signal Command, Fort Meade, Md.; Senior Army Reserve Advisor, Headquarters, I Corps, Fort Lewis, Wash.; Chief, Operations Division, 335th Theater Signal Command, East Point, Ga.; Operations Officer, Operations Division, 335th Theater Signal Command; Executive Officer, 1118th U.S. Army Signal Battalion, Sacramento, Calif.; Commander, Company C, 1118th Signal Battalion; Signal Platoon Leader and Battalion Communications Staff Officer, 4/41st Field Artillery Battalion (Pershing), Federal Republic of Germany; and, operations officer, 39th Signal Battalion, Republic of Vietnam.

In November of 2001, Detamore assumed command of the 335th Theater Signal Command. In November 2002, Detamore was mobilized and deployed to the Southwest Asia Theater. He currently serves as the C6, Coalition Forces Land Component Command, in support of Operations Enduring Freedom and Iraqi Freedom. As the C6 and commanding general, 335th Theater Signal Command, Detamore oversees the largest joint and coalition communications network ever installed in support of an Army Component command.

MG Lowell C. "Rip" Detamore re-enlists a "gunny" from MACS-23 during Roving Sands '05.

Roving Sands involves five nations, new capabilities

Army CPT Scott Helmore, 32nd Army Air and Missile Defense Command, Fort Bliss, Texas, answers a telephone during the Joint Red Flag Exercise inside the unit's command tent March 19. Joint Red Flag was currently ongoing at Nellis Air Force Base, Nev., concurrent with Roving Sands.

Army News Service

FORT BLISS, Texas – U.S. Army Forces Command kicked off a three-week joint training exercise March 15 involving coalition troops and aircraft in order to practice joint-interoperability air defense tactics, while incorporating lessons learned from Operation Iraqi Freedom.

Roving Sands is a Joint Forces Command-sponsored exercise focused on theater air and missile defense and Joint Tactical Air Operations. The exercise is designed to integrate Army, Navy, Air Force, Marine and multinational command and control nodes and associated air and missile defense systems, officials said.

Unlike past Roving Sands, this year's exercise was part of a much larger training event, Joint Red Flag, a multi-service exercise involving more than 12,000 participants at various locations across the country. Four multinational forces participated in the exercise: the Netherlands, United Kingdom, Canada and Kuwait.

The following highlights were part of this year's Roving Sands exercise:

Air Missile Defense Task Force: There are currently only two AMDTF units in the Army and both participated in RS05. These new air defense units are a composite of Patriot, Avenger, and Stinger Missile batteries. They played a vital role in coordinating both air and ground air defense activities. A Marine unit provided crucial coordination between Army Patriot and U.S. Air Force, U.S. Navy, and Coalition aircraft.

23rd Marine Air Control Squadron: This aerial observation force is capable of detecting and tracking inbound objects such as missiles and enemy aircraft, providing a clear picture of potential incoming threats. It also plays a vital role in coordinating both air and ground air defense activities. This Marine unit provided crucial coordination between Army Patriot and Air Force, Navy, and Coalition aircraft.

Joint National Training Capability: This global networking capability brought together all

elements of Joint Red Flag and RS05 and makes the theater wide exercise possible. It networks various command and control nodes.

Joint Land Attack Cruise Missile Defense Elevated Netted Sensors System: This technology is an advancement in detecting low-flying objects such as cruise missiles and low-flying aircraft, normally difficult for conventional ground radar to detect. This piece of equipment is basically a large, zeppelin-like balloon using either a camera or radar to observe downward. It participated in both live and simulated exercises during Joint Red Flag.

Drive Up System Trainer Facility: This simulation center allows Patriot batteries to participate virtually on a synthetic battlefield by acting as a surrogate live radar. The virtual environment allows for training Patriot crews and commanders in demanding combat situations during Roving Sands. Eight Patriot batteries from three Patriot battalions were integrated into the Joint Red Flag scenario from the D.U.S.T. facility. These batteries are in direct contact with virtual command and control elements.

This article was taken from an ARNEWS Release.

335th Theater Signal Command: 'First In – Last Out'

By MAJ Randy K. Riedy

"First In - Last Out" is a familiar saying for today's Signal Soldiers and there was nothing different during the Roving Sands 2005 Joint Interoperability Exercise conducted in and around Fort Bliss, Texas, and White Sands Missile Range, N.M. RS05 was part of Joint Red Flag, a much larger U.S. Joint Forces Command training exercise integrating Army, Navy, Air Force, Marine, and multinational command and control nodes, plus associated air defense artillery systems focusing on theater air defense and joint tactical air operations.

Soldiers from the 335th Theater Signal Command along with Soldiers and Civilian contractors from G6 U.S. Forces Command deployed weeks before the actual exercise to establish the Ground Communications Control Center. As part of the USJFCOM exercise the GCCC was responsible for engineering and establishing a wide area communications network to support RS05 and interface component, allied, and joint forces voice, data and C4I requirements.

RS05 focused on Joint Theater Air and Missile Defense and the Joint Tactical Air Operations, and units participating in the exercise played in both FTX and simulation, but for Signal Soldiers there was no simulation. Communications had to work and be reliable 24x7 to support both real world and simulation requirements.

Signal Soldiers from the 86th Signal Battalion of the 11th Signal Brigade (Fort Huachuca, Ariz.), 842nd Signal Company(TROPO Lt.; Milton, Fla.) of the 359th Signal Brigade (Fort Gordon, Ga.), along with Soldiers from the 286th Signal Company, 11th ADA Brigade and 124th Signal Company, 4th Infantry Division, installed, operated, and maintained the joint backbone transmission network, consisting of super high frequency tactical satellite, TROPO and line-of-sight, commercial fiber/Asynchronus Transfer Mode network and the Joint Training Experimentation Network. The JTEN was used for classified exercise data and voice over Internet Protocol traffic and was connected via commercial fiber/ATM connections. The Joint Circuit Switch Network consisted of single shelter switches AN/TTC-56, Node Centers AN/TTC-47, and REDCOM IGX switches. A joint Promina backbone network was also used to provide the multiplexing of user services.

The GCCC Theater Network Operations and Security Center provided the communications command and control and reporting procedures for the Army echelons above corps/echelon corps and below signal units. The TNOSC remotely monitored all the major nodes and transmission systems in the GCCC information

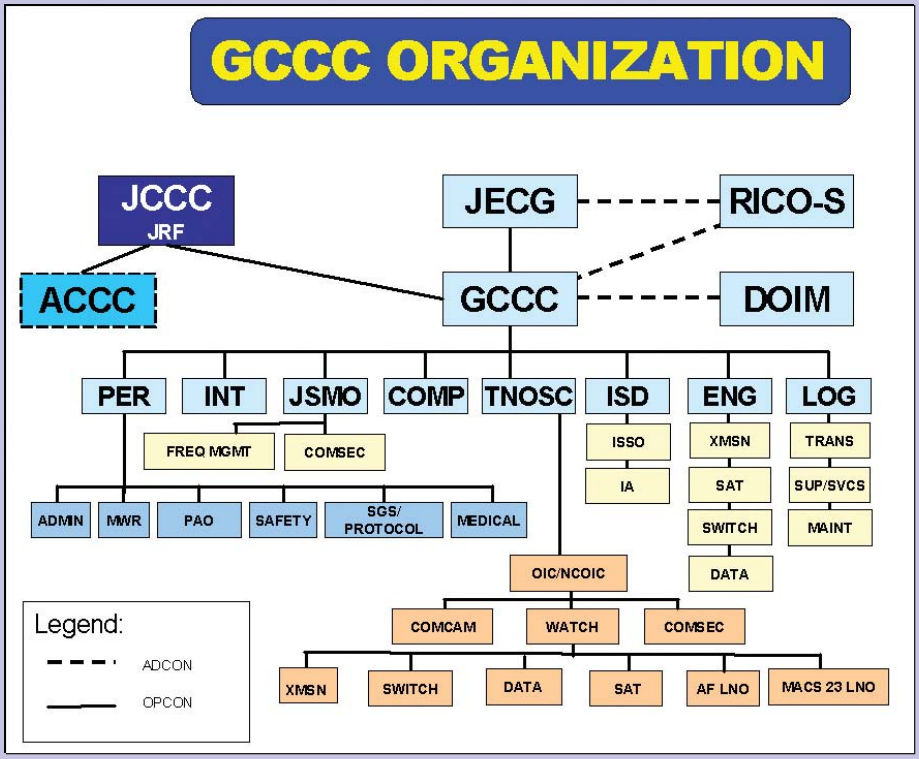


Diagram is a schematic of the relationships within the GCCC.

grid on a 24x7 basis. Modeled after the 335th Theater Signal Command (Forward) TNOSC, at Camp Doha, Kuwait, the GCCC TNOSC provided the G6 theater level situational awareness of transmission, switching, voice, video, and data services in support of the Warfighter. Headed by an officer-in-charge and a non-commissioned-officer-in-charge (see SGM Henderson's article on the next page) the TNOSC consisted of subject matter experts in transmission, data, switching, and satellite communications. Air Force liaisons from the 251st Combat Communications Group and the Marine Air Control Squadron 23 supported the GCCC for control and reporting of U.S. Air Force forces and U.S. Marine forces communications.

Though limited in their scope the GCCC TNOSC communicated on a daily and as-needed basis with the U.S. Air Force's Air Communications Control Center at Nellis Air Force Base, Nev. The ACCC controlled U.S. Air Force communications assets supporting Joint Red Flag. Strategic communication issues and concerns were handled at their level before reporting up to the next higher unit. Both the GCCC and ACCC reported communications statuses directly to the Joint Communications Control Center at Hurlburt Air Field, Fla.

As the virtual battle for Frontierland continued in simulation Signal Soldiers trained on their individual and collective tasks, maintained their equipment, and prepared for their redeployment. As the word to "ENDEX" was given by the Joint Exercise Control Group Signal Soldiers continued to provide communications until the last Soldier, Sailor, Marine and Airman were safely redeployed to home stations. While after-action-reviews were being reviewed and awards were being issued Signal Soldiers quietly pulled up their grounding rods, policed up their last bit of wire and prepared for their long trip home knowing the battle was won, the mission complete and they were the last ones to redeploy home.

MAJ Riedy is the 335th TSC G3 assistant operations officer, East Point, Ga.

MAJ Randy K. Riedy

359th Signal Brigade *makes it happen at* RS05

By CPT Tim Clark

The mission of the Theater Network Operations and Security Center is to "monitor and manage the command, control, communications, computers, and intelligence systems, and networks. The TNOSC also provides theater level situational awareness of transmission, switching, voice, video, and data service in support of the warfighter.

SGM Pruitt Henderson, from the 359th Signal Brigade, is the noncommissioned-officer-in-charge and is the right hand man of the officer-in-charge, MAJ Walter Milne. According to Henderson, "the TNOSC runs two shifts, 24 hours-a-day, ensuring COL Charles Nichols, the G6 (exercise communications director) of Roving Sands 2005, provides uninterrupted communications to the multi-agency, multi-state exercise."

Henderson helped manage five different sections in the TNOSC; transmission, satellite, switch, USAF assets, and Marine Air Control Squadron 23. He set priorities for each section to ensure the entire communications network was monitored 24/7. A software package called "What's Up Gold" helped do just that, but human oversight was the key.

SGM Pruitt Henderson, NCOIC for TNOSC, shared operation of the 24-hour shift during Roving Sands.

The TNOSC team brought together the following capabilities to their external audience; voice (Defense Switch Network, tactical, high frequency, commercial, secure telephone equipment), Joint Training Experimental Network Secure and Non-secure Internet Protocol Routers, information workspace, plus Cable News Network and the Weather Channel. The external audience is the warfighters such as the Air Defense Artillery, U.S. Air Force pilots, and Marine Corps air defense assets.

Henderson works for Georgia Power in Atlanta, Ga., as a communications engineer. As with his job in the TNOSC, he helps manage different communication capabilities. He also looks at new technologies for Georgia Power. He went to a professional trade show in San Diego, Calif., recently, where he was studying automatic meter reading systems to provide more efficient ways of Georgia Power monitoring energy usage. Henderson is married and has two children.

CPT Clark is a graduate of the Infantry Officer Basic Course, Infantry Captains Career Course, Adjutant Captains Career Course, CAS3, and the Military History Instructor Course. He was the PAO for the 359th Signal Brigade at ROVING SANDS 2005 and now works at the 335th Theater Signal Command in Atlanta as a personnel management officer.

324th Signal Battalion debuts TACSAT for Army Reserve

By CPT Tim Clark

Signal in the Army Reserve is taking a quantum leap forward with the arrival of the latest satellite technology to the 324th Signal Battalion out of Fort Gordon, Ga.

The move marks a first for the Army Reserve as this type of communications equipment, until now, has mostly remained in the active component or Army National Guard.

Called the 93C and D Tactical Satellite system or TACSAT, this latest signal technology made its debut with the Army Reserve during this year's Roving Sands training exercise at Fort Bliss, Texas.

SFC Edwin Cruz of the 335th Theater Signal Command in East Point, Ga., has been putting the new equipment through its paces during the past two years while helping to train future reserve TACSAT operators.

Cruz says "Testing included putting the high speed equipment through the paces both on and off the satellites, affectionately known as 'birds,' where it receives its information."

The 93C regular model TACSAT has the ability to provide one uplink at a frequency range from 7.9 to 8.4 Gigahertz and a data transfer rate of 1152 kilobits per second. The 93C can also provide a downlink at a frequency range from 7.25 to 7.75 GHZ and receive with a maximum downlink data rate of 1152 Kbps.

The van, or shelter as it is called in Army vernacular, holds all of the components that make this communications equipment work. Both the 93C and D models are made up of two 10 kilowatt electrical generators, two shelters, a satellite dish, and a nine and-a-half foot parabolic antenna. Once operational it can provide a voice communication transfer rate over the digital switch network, i.e. telephones, at 128Kbps or 324Kbps over the non-secure Internet Protocol net, i.e. computers.

In a field environment the 93C or D information would go through the standardized tactical entry point facility to access the Internet or use telephones. In a garrison setting the information would go through Directorate of Information Management and is managed by an information system security officer.

Cruz says that "the basic difference between the older model equipment, the 93C, and the newer model, the 93D, is analog and digital. The 93C is an analog system that is approximately five years old, and the 93D is the latest and greatest model with digital switches and has much more capability."

The 324th is a subordinate unit of the 359th Signal Brigade, also at Fort Gordon.

CPT Clark is a graduate of the Infantry Officer Basic Course, Infantry Captains Career Course, Adjutant Captains Career Course, CAS3, and the Military History Instructor Course. He was the PAO for the 359th Signal Brigade at Roving Sands 2005 and now works at the 335th Theater Signal Command in Atlanta as a personnel management officer.

Light TROPO used at RS05.

842nd Signal Company fields latest communication package at RS05

By CPT Greg Majewski

The next generation of signal technology made its debut March 2005 during Roving Sands at Fort Bliss, Texas, greatly enhancing the Army's ability to transmit and receive data on the battlefield.

The 842nd Signal Company of Milton, Fla., is the first light tropo company in the Army to see these new upgrades which promise better reliability, faster transmissions, and improved streaming of data, voice, and video.

Operators of the TRC-170s lovingly refer to their antennas as "Mickey Mouse Ears". One dish receives data, while the other one transmits.

"It's exciting that we are the first ones to see these critical upgrades," said SGT Paul Kostelecky, operator.

The new additions include improved bit error rates for better performance, fiber optic interfaces, full auto switching with modem redundancy, and remote monitoring. These new additions increase the system's bandwidth from two megabytes to eight mbs.

"Since we are the first to see these new upgrades, we still have our older systems in the shelter in case we need to interface with other units without the new equipment," said Kostelecky. "I guess you can say we are bit of a switch hitter."

The Signal Corps moved toward a greater use of satellite communications during the 1990s. But when the Iraq war arrived in 2003, planners quickly realized there were not enough satellites available to meet the war planner's needs.

"Satellite's bandwidth limitations meant that tropo had to be the backbone," said LTC Tom Lantzy, 335th Information Services Divison. "Tropo provided us with much larger pipes to push a greater amount of bandwidth."

"To me it's much easier to expand the capabilities of tropo, like we are doing now, than it is to build and launch a new satellite," said Lantzy.

Tropo gets its name because of how it transmits and receives its data. The dishes bounce a signal off the bottom layer of the troposphere, allowing it to travel greater distances than a simple line-of-site transmission. Operators say a typical tropo shot covers about 120 miles.

The 842nd is assigned to the 359th Signal Brigade. The 359th Signal Brigade is a subordinate command of the 335th Theater Signal Command and is located at Fort Gordon, Ga.

Heavy TROPO equipment operated in Roving Sands 2005 exercise.

CPT Clark is a graduate of the Infantry Officer Basic Course, Infantry Captains Career Course, Adjutant Captains Career Course, CAS3, and the Military History Instructor Course. He was the PAO for the 359th Signal Brigade at Roving Sands 2005 and now works at the 335th Theater Signal Command in Atlanta as a personnel management officer.

982nd Signal Company (Combat Camera) in action

By CPT Tim Clark

(Fort Bliss, Texas) -- During Roving Sands 2005 the 982nd Signal Company (Combat Camera) traveled tirelessly all over Fort Bliss, Texas documenting the Soldiers, Sailors, Marines, Airmen, and Civilians who have made this Joint Forces Command exercise a success.

2LT Jason Struck and his noncommissioned-officer-in-charge SSG Bronco Suzuki led their team of combat cameramen who consisted of: SSG Thomas Boadway, SGT Isaac Scruggs, SGT Michael Casteel, SPC Edward Settle, PFC Davis Pridgen, and PFC Jason Edwards.

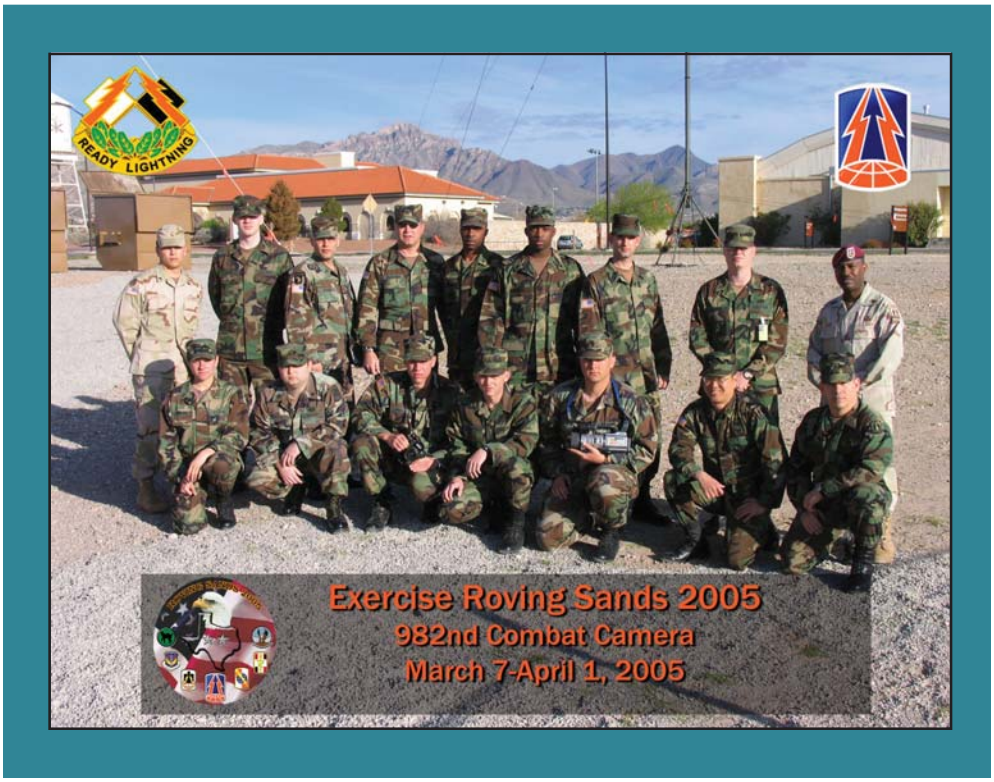
All are graduates of the Defense Information School located at Fort Meade, Md. Some are recent graduates and some are combat veterans. Edwards graduated late last year and Scruggs graduated four and-a-half years ago and is an

Operation Enduring Freedom veteran.

Scruggs' OEF tour was with a Combined Joint Special Operations Task Force, and he has several photo credits published on the Army Knowledge On-line homepage and *Soldiers* magazine in the spring of 2004.

One of his photos was also selected for photo of the month for the DoD Information Service in 2003. "Since graduating from DINFOS in 2000, I have had the honor and pleasure of documenting the Soldiers' and the Army's story to the total Army and the American public."

This is Edwards' first hands-on experience since graduating from DINFOS in September 2004. Edwards explained, "There are only two combat camera units in the total Army, one in the active component, and one in the Army Reserve. I am proud to be a part of this team."



Both Scruggs and Edwards were taught at DINFOS to make contact with the unit they were to document, describe the unit's mission, produce still photos and video vignettes, and then produce an article through post production techniques which is forwarded via the Internet to the Joint Combat Camera Center at the Pentagon for archiving.

Settle spent six months with the JCCC at the Pentagon archiving video products from combat camera teams from the Army, Navy, Air Force, and Marines in the field.

Settle said, "I worked with a joint team of officers and other enlisted members at the Pentagon. It was an interesting experience that I will always remember."

2LT Luke Cuddy, team two OIC, and SFC Michael Guillory, team two NCOIC, and their team of five combat cameramen did an excellent job during the second two weeks of the four week Roving Sands exercise at Fort Bliss, Texas.

The five combat cameramen of team two were - SGT Edward Reagan, SGT Matthew Siemion, SGT John Jones, SPC Jesse Artis, and PFC Tierney Nowland. They tirelessly covered operations at Building 730 (GCCC and TNOSC), Building 1093 (HQ, Exercise Roving Sands 2005), McGregor Range, and the Huecho training site.

CPT Clark is a graduate of the Infantry Officer Basic Course, Infantry Captains Career Course, Adjutant Captains Career Course, CAS3, and the Military History Instructor Course. He was the PAO for the 359th Signal Brigade at Roving Sands 2005 and now works at the 335th Theater Signal Command in Atlanta as a personnel management officer.

SFC Scott Jackson describes tactical satellite operations to Commanding General, United States Army Reserve, LTG James Helmly during a visit to RS05.

LTG Helmly visits 335th TSC Signal Operations at RS05

CPT Greg Majewski

Commanding General, United States Army Reserve, LTG James Helmly, visited Fort Bliss, Texas, to tour joint signal operations during this year's Roving Sands training exercise.

The 335th Theater Signal Command's unique inter-service operations provided the Chief of the Army Reserve the opportunity to hold up command's joint communications network as a model for the rest of the U.S. Army.

It is these kinds of operations here, signal command and control, where we are operating jointly that the team work really comes across, said Helmly.

"An Army unit may be transmitting data to support the United States Marine Corps, the Marine unit may be transmitting voice to support the U.S. Air Force and this is the way we operate as a single

team."

Helmly's visit also allowed the general to highlight the 21st century model of training that the Army Reserve will begin using.

"The way we practice war today is much different than the way we planned to practice war in the 20th century", said Helmly. "It's very fast moving; we have to become very agile; and what we are doing here we need to be very proud of."

The 335th Theater Signal Command, from East Point, Ga., is responsible for all ground communication and networking systems coverage in the Southwest Asia Theater of operations. 335th Soldiers manage the largest and most complex joint communications network ever installed in support of a warfighter.

Many of the joint signal lessons-learned during Operations Enduring and Iraqi Freedom are used in support of Roving Sands.

Helmly said the Soldier's input from those lessons-learned are necessary to keep current and future operations operating at peak efficiency.

"A living organization is always on the move forward; it's learning from within and from without," said Helmly. "It's learning from its own people and we need to change the Army Reserve to make sure we listen to our Soldiers; they are the experts."

The 335th Theater Signal Command is one of only three signal theater commands in the U.S. Army.

CPT Majewski is a graduate of the Signal Officer Basic Course, the Signal Captain's Career Course-RC, and the Public Affairs Officer Course, DoD Information School. He is the PAO for the 335th Theater Signal Command located in East Point, Ga., near Fort McPherson. In civilian life, Majewski is a meteorologist with a local Atlanta TV station.

86th Signal Battalion excels at RS05

By CPT Tim Clark

(Fort Bliss, Texas) - In preparation for Roving Sands 2005, Soldiers from B Company, 86th Signal Battalion from Fort Huachuca, Ariz., installed satellite communications sites for the Air Defense Artillery exercise that has not been performed since 2001. The company commander, CPT Steven Mosely, had Soldiers diligently preparing various pieces of communications equipment, as well as, fighting positions and generators.

1LT Cedar Chapman, platoon leader, was in the Tactical Operations Center, when we met her. She was working with her noncommissioned officers to ensure the McGregor field training exercise site was working smoothly by monitoring communications and ensuring completion of all required tasks. "Our Soldiers are preparing their communications equipment as well as constructing hasty fighting positions as part of our force protection posture," said Chapman.

SPC Charles Bonacci maintains the unit's Tactical Satellite

SPC Charles Bonacci prepares a hasty fighting position outside his signal shelter at Camp McGregor.


86th Signal Battalion CSM Calton and LTC Washer, commander, lead the battalion in RS05.

Model 85 (AN-TSC-85). He ensures his communications equipment provides the 1-44th ADA warfighters all the voice, data, and Internet information they will need to be successful. His buddy team member, SPC Robert Mattison, was outside digging hasty fighting positions for their communications node. Mattison said "It just takes a little bit of elbow grease in constructing each hasty fighting position, but the weathers' not too bad today."

Soldiers from the 842nd Signal Company, SGT Paul Kostelecky and SSG John Albert, along with CW3 Edwin Crews from the 335th Theater Signal Command replaced parts on the Tropospheric scatter communications equipment to make it operational. Crews said, "We're here to troubleshoot this TROPO unit and install some repair parts to make it operational."

Secure Mobile Anti-Jam Tactical Terminal and its Humvees were also undergoing preventive maintenance checks and services by Soldiers of B Company to ensure both were mission capable for the exercise.

CPT Clark is a graduate of the Infantry Officer Basic Course, Infantry Captains Career Course, Adjutant Captains Career Course, CAS3, and the Military History Instructor Course. He was the PAO for the 359th Signal Brigade at Roving Sands 2005 and now works at the 335th Theater Signal Command in Atlanta as a personnel management officer.

23rd Marine Air Control Squadron watches Fort Bliss skies – oorah!

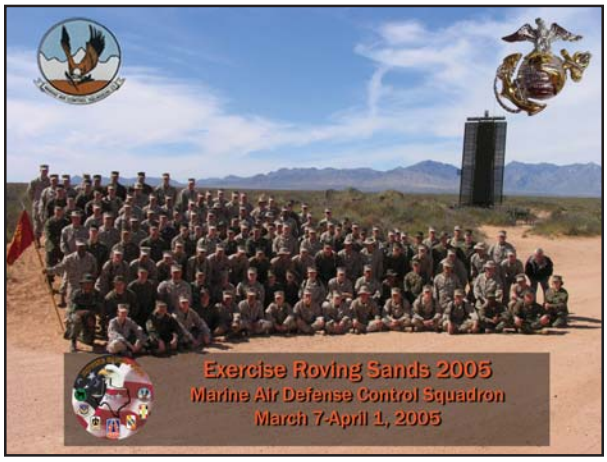
By CPT Tim Clark

Marine Air Control Squadron 23 is a key element inside the Tactical Network Operations Security Center inside Building 730. The liaison officer running the MACS 23 show in the TNOSC is CW3 Stephen Lynch. Lynch's unit is a combination of Selected Marine Corps Reservists and active duty Instructors and Inspectors (I and I). The unit hails from Buckley Air Force Base in Aurora, Colo., and has primarily been setup at Huecho near MacGregor Range about 30 miles outside Fort Bliss' main post area.

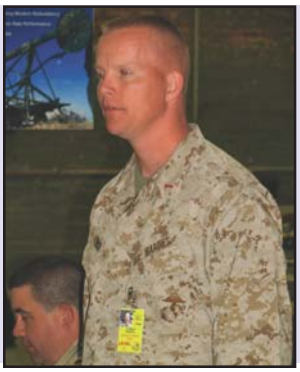
"Gunner" (as he is affectionately known by other Devil Dogs) Lynch says MACS 23's mission is to provide air surveillance and the control of aircraft, and surface to air weapons for anti-air warfare, air space management, and surface to air missile fires in defense of vital areas against theater missile attack in support of a Marine Air Ground Task Force.

Some of the squadron's tasks include managing anti-air warfare assets within a designated sector, detecting, identifying, and classifying all aircraft within an assigned sector, maintaining tracks of identified contacts and providing route control/navigation assistance as required, selecting and assigning weapons to engage and defeat enemy air threats and lastly, controlling the engagement of enemy air threats by increasing interceptors or surface-to-air weapons.

In the photo you can see a tower, the AN/TPS-59, which is at the heart of the MACS 23's world. It is approximately 40 feet tall and has the capability of tracking both air breathing and theater ballistic missile threats either simultaneously or separately. It can 'look' up 100,000 feet and out approximately 300 miles in all directions.



USMC CWO3 Stephen Lynch liasion officer ran the MACS 23 show in the TNOSC.



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MAJ Hall trains Regional Interface Control Officers

By CPT Tim Clark

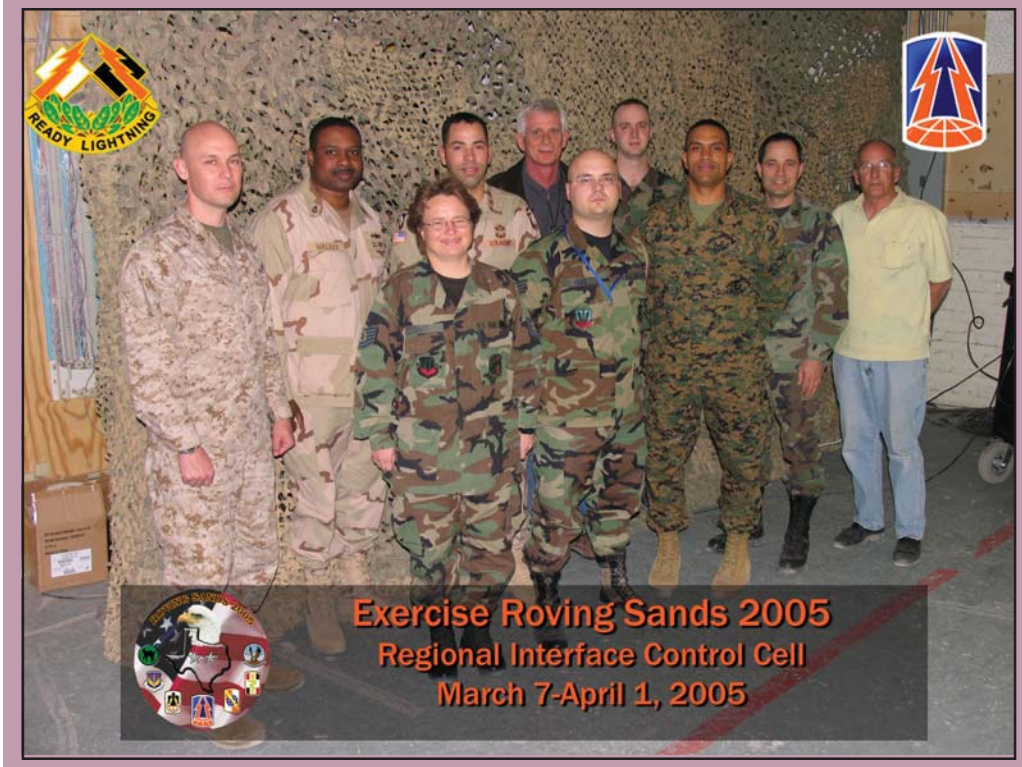
What in the world is RICO? OPTASKLINK? Well, MAJ William Hall explained it quite well when I sat down with him and some of his instructors to see how they fit into the Ground Communications Control Center in Building 730. The acronym RICO stands for Regional Interface Control Officer meaning they maintain voice and data connectivity links for Forces Command's Joint Interoperability division back in Atlanta, Ga., at Fort McPherson.

The RICO manages various datalink networks over a variety of transmission means, to include; high frequency radio, single channel tactical satellite, Internet Protocol and modems. You can think of it as a datalink standard operating procedures for the air command and control of AWACS, air defense artillery, and U.S. military aviation assets.

Hall leads four prior service Civilian contractor instructors and 10 students (three Navy, three Air National Guard, three Army, and one Civilian) while maintaining these communications links for Roving Sands 2005. His four instructors, LTC (Ret.) William Scandrett, Chris Holmes, Mike Farley, and Brian Vinson all took pride in teaching their students who come from each branch of service, both enlisted and officer.

Scandrett in his self deprecating humor said his most important functions are making the coffee and taking out the trash for the RICO team. He is a former Army signaleer and is a subject matter expert on commo, radios, and switches. He, too, is based at Forces Command.

Chris Holmes is a Joint Interface Control Officer instructor. When the students graduated in April, Holmes had groomed these future interface coordination officers. He also was been deployed with a Joint Interoperability Cell Deployable in both Iraq and Afghanistan.



USAF LNOs own airspace

MAJ Craig Kowald and SMSGT Brian Presson are the United States Air Force liaison officers for the Tactical Network Operations and Security Center during the day shift.

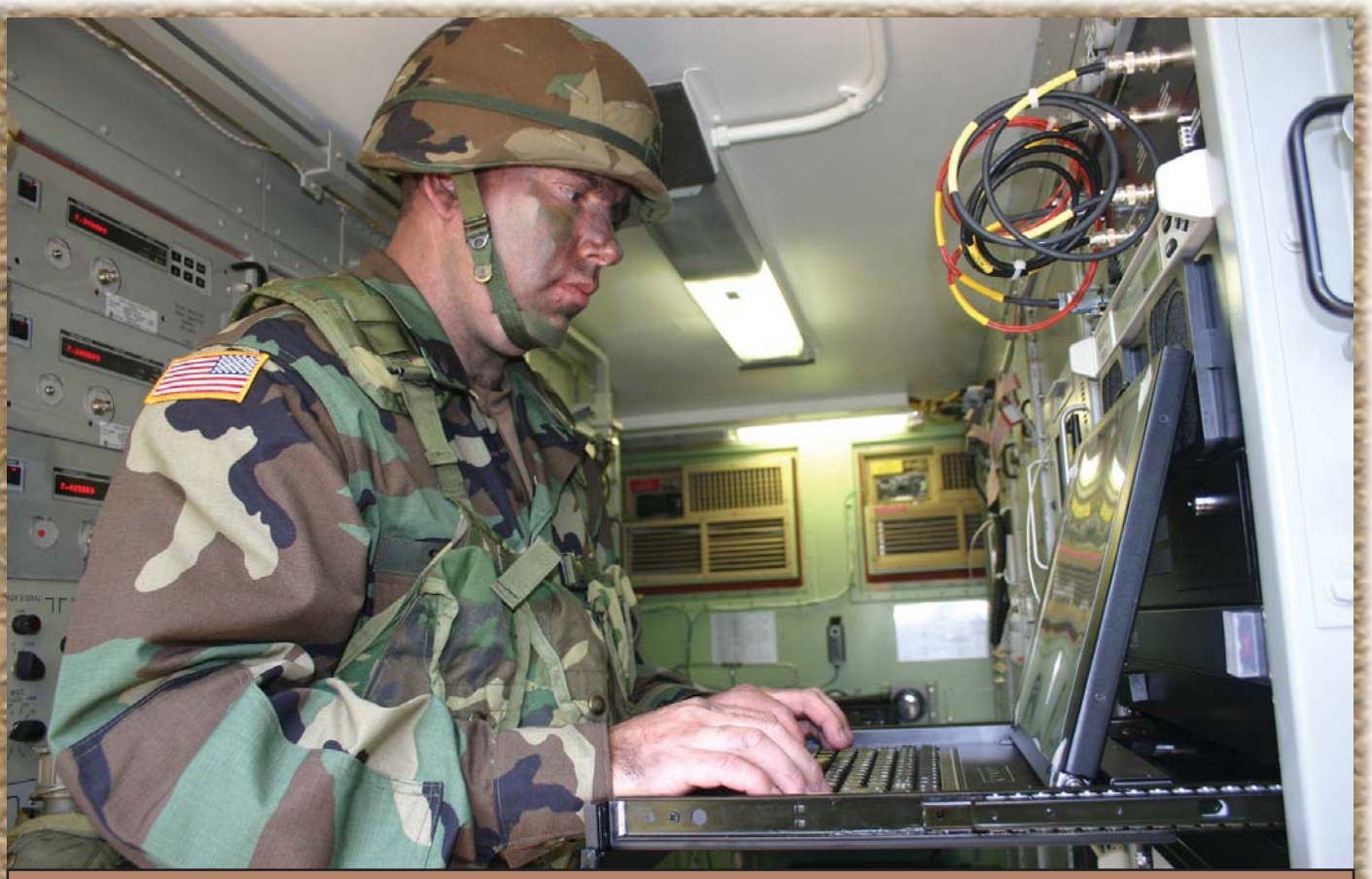
By CPT Tim Clark

MAJ Craig Kowald and SMSGT Brian Presson are the United States Air Force liaison officers for the Tactical Network Operations and Security Center during the day shift while MSG Whitmore works the night shift. The main purpose for their presence was to coordinate and de-conflict long haul communications issues between the Army and the Air Force. For Roving Sands 2005 they troubleshooted and assisted in the configuration of communication links between Nellis AFB, north of Las Vegas, Nev., and Wendover Air Force Base in Wendover, Utah.

The communication systems they supported include satellites plus secure and non-secure data and telephone services.

Kowald is from the 252nd Combat Communications Group (Washington Air National Guard) and Presson is from the 272nd Combat Communications Squadron (Oregon Air National Guard).

CPT Clark is a graduate of the Infantry Officer Basic Course, Infantry Captains Career Course, Adjutant Captains Career Course, CAS3, and the Military History Instructor Course. He was the PAO for the 359th Signal Brigade at Roving Sands 2005 and now works at the 335th Theater Signal Command in Atlanta as a personnel management officer.



324th Signal Battalion breaks new ground

SPC Armando Monroig

The 324th Signal Battalion conducted a ribbon cutting ceremony for a Multi-channel Tactical Satellite at the Army Reserve Center, Fort Gordon, Ga., April 28.

Although the equipment is not new to the Army, it was the first ever fielding of the Multi-channel Tactical Satellite Systems to the U.S. Army Reserve.

The guest speaker was LTG James Helmly, U.S. Army Reserve Command and chief, Army Reserve, who along with MG Janet Hicks, U.S. Army Signal Center and Fort Gordon commanding general, MG Lowell Detamore, 335th Theatre Signal Command, commanding general, and BG Dennis Lutz, 359th Signal Brigade commanding general, held the ribbon cutting.

"I am Ron Helmly and I am an American Soldier," said Helmly as he welcomed those in attendance and thanked the Soldiers who have mobilized and deployed in support of Operations Iraqi Freedom and Enduring Freedom.

"Fielding the TACSAT system, which consists of a set of super-high frequency satellite terminals to

the Army Reserve Signal community signifies tremendous change and forward movement for the Army Reserve," said Helmly.

"Now our Army Reserve signal units possess 21st century global communications capabilities," he added.

The 324th Signal Battalion is the first of four Army Reserve units to receive the TACSAT terminals. The 319th Signal Battalion in California, the 35th Signal Battalion in Puerto Rico, and the 392nd Signal Battalion in Pennsylvania will receive the same systems between now and 2008, said Hemly.

He added that when completed, the Army will have fielded a total of 10 systems per battalion. Additionally, the TACSAT system is scheduled for fielding to the Army National Guard later this year.

"So the Army and its Reserve components will have the advantage of one more interoperable communications link on the battlefield," said Helmy.

With TACSAT, Helmly said echelon-above-corps Army Reserve signal units like the 324th can now provide a combatant commander with immediate, long-haul communications in addition to the 140-mile, line-of-sight capability it already has.

"The fielding of the TACSAT to the 324th and other Army Reserve units increases the capability of Army Reserve signal community immensely, making our Signal Soldiers and units more ready, more relevant, and more able to be 'Watchful for the Country,' the motto of the Signal Regiment," Helmly said.

The Army Reserve is no longer limited by line-of-sight, he said, with its reach now being instantaneous and global, extending from overseas battlefields to the stateside units supporting the war.

Helmly added that the Army Reserve is changing – from how units are organized to how Soldiers are trained and equipped – and the addition of this equipment is evident of that change.

MAJ Robert Roberts, 324th Signal Battalion executive officer and one of the individuals responsible for organizing the ceremony, said that until now the Army Reserve has never had satellite capability before.

He said that in the past when a Reserve unit went on an exercise they needed to coordinate with active duty Army units to obtain tactical satellite communications.

"All we had was line-of-sight and switch capabilities," said Roberts. "Now, this makes us more relevant to the force than before."

The new pieces of equipment are the ANTSC-93 van and the ANTSC-85 van that Roberts said are the "latest and greatest on the market."

The only other unit in the Army that has them, Roberts said, is the schoolhouse.

"We're the first ones to get the delta models," added Roberts referring to the equipment.

Roberts said that of the customers they support, 70 percent are in the Army Reserve. Now, he said, his unit can go to various exercises its customers conduct and provide the services they need such as data, telephone and video teleconferencing.

"To the combatant commanders, it gives us an opportunity to relieve units like the 93rd, so they don't have to take the full brunt of a deployment anymore," said Roberts.

He added that this also allows battalion commanders to task organizations within their own battalions and not depend on another company for assets.

In addition, Roberts said this new equipment now gives the commander of the Army Reserve the capability to provide services for the exercises they conduct internally such as Operations Golden Castle, an engineer operation, Golden Cargo which deals with transportation, and Golden Medic.

SSG Mark Shane, Company C, 324th Signal Company, said the ANTSC-85 Delta is much needed.

"It fills a void as far as joint communications between the different services," said Shane, that allows for translation and communication between different pieces of equipment and software.

SPC Armando Monroig is a journalist with the The Signal *newspaper, Fort Gordon Public Affairs Office, Fort Gordon, Ga.*

Citizen Soldier weatherman looks at Mother Nature's impact on Signal

A major dust storm in March 2003 provided weather obstacles for all signal operators in Iraq.

By CPT Greg Majewski

The weather and signal! Could there be anything better? I get the chance to work in the best of both worlds. In my civilian life, I'm a meteorologist at WJHG-TV in Panama City, Fla. In the Army Reserve, I'm a Public Affairs and Signal officer for the 335th Theater Signal Command in East Point, Ga.

Here at Roving Sands on Fort Bliss, I thought this would be a great time to take a look at the close relationship between weather effects and the Signal Corps' ability to communicate on the battlefield.

Weather impacts nearly all signal equipment in some fashion. Weather safety is also of concern. But what piece of signal equipment does Mother Nature give operators the most obstacles to overcome? Let's start out with the system that has part of the atmosphere in its name called Tropospheric scattering or TROPO for short.

The shelter is called an AN/TRC-170. There are two versions of the antenna used, the V2 & V3. The V2 is used in the heavy TROPO version. Its transmissions are much stronger than its V3 counterpart.

For TROPO to work, two TROPO shelters set up at different distant locations. An average TROPO shot covers about 120 miles. The two transmitted beams cross at the lower troposphere, bouncing back to the receiving end. One dish receives, while the other transmits. Here's where the weather comes in.

If a strong temperature inversion sets up, the beams bend down and miss each other. The same can be said for any line-of-sight transmissions. An inversion is caused when the temperature at the ground cools faster than the air above it. The bigger the temperature differences from the surface to the air above, the stronger the inversion.

Another factor for TROPO units is weather on the sun. Sunspot activity on the sun can strongly interfere with transmissions and receptions. Sunspots are dark spots on the surface of the sun. They are cooler areas and tend to erupt in gigantic explosions sending a tremendous amount of radiation towards the earth.

This radiation is intercepted and absorbed by the earth's atmosphere most of the time, causing minor problems. But when major eruptions occur, they can cause havoc on nearly all types of communication systems.

This leads to another communications device that has problems with sunspots. That's the tactical satellite systems or TACSAT. There are many different types of satellite equipment used in the Signal Corps. The most commonly used systems include the AN/TSC-85+ and the AN/TSC-93C+ & 93D.

Strong solar activity can impact these systems' data, voice, and video streams. Space weather isn't the only impediment to satellite transmissions. Surface weather can also cause problems.

Just like your own TV dish at home, military satellites can also experience rain fade from a passing heavy thunderstorm, degrading a satellite system to the point of no reception.

And if lightning is in the area, both satellite and TROPO operators must be aware of any possible lightning strike. Since satellite and TROPO must be in the clear to transmit their data, they tend to be the tallest objects around. Lightning tends to strike

the tallest object. Both teams place lightning rods above their antennas and dishes to help protect them from a possible strike.

If the rods are not properly grounded, a lightning strike will not only fry a communications setup, but can seriously injure or even kill a Soldier nearby. When it comes to lightning safety, there can be no shortcuts.

The last major weather obstacle that all signal elements must prepare for is high winds. High winds can tumble antennas and pick up dishes, tossing them like matchsticks. And in a desert environment like Iraq, wind can drive large dust storms, impacting all electrical systems.

The bottom line is signal operators can take some preventive measures to protect themselves and their equipment from the worst Mother Nature has to offer. But Soldiers must also not take weather for granted, and listen to all forecast briefs from higher headquarters.

CPT Majewski is a graduate of the Signal Officer Basic Course, the Signal Captain's Career Course-RC, and the Public Affairs Officer Course at the DoD Information School. He is the PAO for the 335th Theater Signal Command located in East Point, Ga., near Fort McPherson. In civilian life, Majewski is a meteorologist who recently transferred to a local Atlanta TV station.

335th TSC Joint Acronym List Part 1

335th TSC Joint Acronym list for BRIGHT STAR 2005

AAMDC - Army Air and Missile Defense Command
AAIC – Army Architecture Integration Cell
ABCS- Army Battle Command System
ABM – Anti-ballistic missile
ABMOC – Air Battle Management Operations Center
ACCC – Air Communications Control Center
ACCE – Air Component Coordination Element
ACIPS-LT – Army Casualty Info Processing System (Light)
ACUS – Area Common User System
ACS – Air Control Station
ADAG – Arrival Departure Air Group
ADCCN – Air Defense Command and Control Net
ADCP-2 – Air Defense Communication Platform 2
ADI – Analog Digital Interface
ADOCS – Automated Deep Operations Coordination System
ADSI – Air Defense System Integrator
AEPDS – Advanced ELINT processing and Dissemination System
AEPS – Army Electronic Product Support
AFATDS – Advanced Field Artillery Tactical Data Systems
ALOC – Administrative and Logistics Operations Center
AMD – Air and Missile Defense
AMDWS – Air and Missile Defense Workstation
AMHS - Automated Message Handling System
AMS – Automated Manifest System
AOC – Air Operations Center
AROC – Army Requirement Oversight Council
ARSTRUC – Army Structure Message
ARTS – Army Reserve Transformation Study
ASAS – All Source Analysis System
ASAS – AS – All Source Analysis System (All Source)
ASAS-LITE – All Source Analysis System (LITE)
ASAS – SS – All Source Analysis System (Single Source)
ASAS – RWS – All Source Analysis System (Remote Work Station)

335th TSC Joint Acronym List Part 2

ASCC – Army Service Component Command
ASEDP – Army Space Exploitation Demonstration Program
ASI – Actuator Sensor Interface
ASOC - Air Support Operations Center
ASOS - Air Support Operations Squadron
ASOS – Army Support to Other Services
ASPG – Army Strategic Planning Guidance
ASTI – router, company name
ATEC – Army Test and Evaluation Command
ATO - Air Tasking Order
AWACS – Airborne Warning and Control System
BAT – Biometrics Automated Toolset
BBN TCP – Baseband Node Transit Case Package
BCOTM – Battle Command On The Move
BCP – Battle Command Post
BCS – Battlespace Command System
BCSC- Combat Communications Squadron
BCS3 – Battle Command Sustainment Support System
BFN – Bridge to Future Networks
BFT – Blue Force Tracker
BLUFOR – Blue Force
BLOS – Beyond Line of Sight
BMDO - Ballistic Missile Defense Organization
BOD – Board of Directors
BOS – Battlefield Operating System
C2 – Command and Control
CAA – Concepts Analysis Agency
CAISI – Combat Service Support Automated Information System Interface
CAMDEN – Cooperative Air and Missile Defense Exercise Network
CAOC – Combined Air Operations Center
CAOC-N – Combined Air Operations Center (North)
CAX – Computer aided exercise
CBCS – Combat Communications Squadron
CCOD – Command Center Operational Display
CCP – Command and Control Post; Contingency Communications Package
CCG - Combat Communications Group
CCIR – Commanders Critical Information Requirements
CDA – Commanders Digital Assistant
CDMA – Code Division Multiple Access
CEOI – Communication and Electronics Operating Instructions
CFACC – Combined Force Air Component Commander
CFLCC – Coalition Forces Land Component Command
CGS – Command Group Station
CHAMS – CI/HUMINT Automated Management System
CHATS - CI/HUMINT Automated Tool Set
CIC - Combat Integration Center
CIK – Crypto Ignition Key
CLAWS – Complimentary Low Altitude Weapons System
CLOE – Common Logistics Upgrading Environment
CND – Computer Network Defense
COI – Communities of Interest
COMEX – Communications Exercise
COP – Common Operational Picture
COSIS – Care of Supplies in Storage
CPD – Capabilities Production Document
CPOF – Command Post of the Future
CPX – Command Post Exercise
CROP – Common Relevant Operational Picture
CRC - Control and Reporting Center
CRE - Control and Reporting Element
CSCE - Communications Systems Control Element
CSU - Channel Service Unit
CTAPS - Contingency Theater Automated Planning System
C2PC – Command and Control Personal Computers
C3I - Command, Control, Communications and Intelligence
C4 – Command, Control, Communications, and Computers
C4ISR- Command, Control, Communications, Computers &Intelligence, Surveillance, Reconnaissance
DAASC – Defense Automatic Addressing System Center
DAMA – Demand Assigned Multiple Access
DAS – Defended Asset List
DCIPS – Defense Casualty Information Processing System
DCN – Defense Communications Network
DCO – Dial Central Office
DCTS – Defense Collaborative Tool Set
DEMUX – Demultiplex
DERF – Defense Emergency Relief Funds
DESEX – Defense Supply Expert System
DIMHRS – Defense Integrated Military Human Resources System
DIMS – Detainee Information Management System
DINFOS – Defense Information School
DISN – Defense Information Switch Network
DMOC – Distributed Mission Operation Center
DMS - Data Management System; Defense Messaging System
DOIM – Department/Directorate of Information Management
DOTMLPF – Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities

335th TSC Joint Acronym List Part 3

DSN – Digital Switch Network
DSU – Digital Service Unit
DTG – Digital Trunk Group; Date Time Group
DTRACS – Defense Tracking System
DTSS – Digital Topographic Support System
DTSS-L – Digital Topographic Support System (Light)
DUST – Drive Up System Training
DVSG – DISN Video Services Global
EDAS – Enlisted Distribution & Assignment System
EECP – Early Entry Command Post
EHF – Extremely High Frequency
ELINT – Electronic Intelligence
E-MILPO – Electronic Military Personnel Office
EMT – Effects Management Tool
EPLRS - Enhanced Position and Location Reporting System
ESA – Enterprise Systems Activity
ESTA – Enterprise Systems Technology Activity
ETA – Estimated Time of Arrival
EWC – Electronic Warfare Center
FAA – Federal Aviation Administration
FAD – Funds Allocation Document
FAST – Forward Area Support Terminal; Forward Surgical Team
FBCB2 – Force XXI Battle Command Brigade and Below
FDMA – Frequency Division Multiple Access
FDU – Force Design Update
FIOP – Family of Interoperable Operational Pictures
FOB – Forward Operating Base
FOM – Fiber Optic Modem
FTP – File Transfer Protocol
GAV – Graphical All View
GCCC – Ground Communications Control Center
GCCS- Global Command and Control System
GCCS-A – Global Command and Control System - Army
GCCS-I3 – Global Command and Control System – Integrated Imagery and Intelligence
GCSS-A ILAP – Integrated Logistics Application Program (WEB)
GDSS – Global Decision Support System
GHZ – Gigahertz
GIG – Global Information Grid
GSA – General Services Administration
GTN – Global Transportation Network
HSOC – Home Station Operations Center
IA – Information Assurance
IAVA- Information Assurance Vulnerability Alert
ICC – Interface Coordination Center
ICO – Interface Coordination Officer
ICP – Incremental Change Package
ICT – Integrated Concept Team
IDC – Information Dominance Center
IDM - Information Dissemination Management
IDNX - Integrated Data Network Exchange
IFF – Identification Friend or Foe
IGX – Integrated Gigabit Exchange
I & I – Instructors and Inspectors (USMC)
ILAP – Integrated Logistics Application Program
IMETS – Integrated Meteorological System
IO – Information Operation
IOM – Install, Operate, and Maintain
IOS – Intelligence and Operations System
IPL – Imagery Product Library
IRC – Internet Relay Chat
IRRS – Integrated Road Rail Information System
ISA – Intraservice Support Agreements (DD Form 1144)
ISB - Intermediate Staging Base
ISD – Information Services Division
ISSO – Information Systems Security Officer
ISYSCON- Integrated System Control
IWS – Information Workspace
ITV – In-Transit Visibility
IWS – Information Work Space
I3MP – Installation Infrastructure Modernization Plan
JADDC – Joint Air Defense Direction Center
JAOC – Joint Air Operations Center
JBCS – Joint Battlespace Command Systems
JBMC2 – Joint Battle Management Command & Control
JC2ISR – Joint Command and Control, Intelligence, Surveillance and Reconnaisance
JCAP – Joint Crisis Action Planning
JCCC – Joint Combat Camera Center
JCEOI – Joint Communications and Electronics Instructions
JCIET – Joint Combat Identification Evaluation Team
JCMD – Joint Cruise Missile Defense
JDIICS-D - Joint Defense Information Infrastructure Control System (Deployed)
JDISS- Joint Deployable Intelligence Support System
JDLM – Joint Deployment Logistics Module
JECG – Joint Exercise Control Group
JETA – Joint Experimentation, Test and Evaluation, and Advanced Technology Concept Demonstrations (JFCOM)
JFCOM – Joint Forces Command
JFLCC- Joint Forces Land Component Commander
JFWC – Joint Warfighting Center
JIB – Joint Information Bureau
JICC-D – Joint Interface Control Cell (Deployable)
JICO - Joint Interface Control Officer
JISR – Joint Intelligence Surveillance Reconnaissance
JLENS – Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System
JLWI – Joint Logistics Warfighter Initiative
JMICS – JWICS Mobile Integrated Communications System

335th TSC Joint Acronym List Part 4

JNIC – Joint National Integration Center
JNMS – Joint Network Management System
JNN – Joint Network Node
JNTC-S – Joint Network Transport Capability (Space)
JOA – Joint Operations Area
JOCAT – Joint Operational C4I Assessment Team
JOPES – Joint Operational Planning and Execution System
JRAC – Joint Rear Area Command
JROC – Joint Requirement Oversight Council
JSIRS – Joint Spectrum Interference Resolution
JSMO – Joint Spectrum Management Office
JSTARS - Joint Surveillance Target Attack Radar System
JSTE – Joint Systems Training Exercise
JSWS – Joint Service Work Station
JTAGS – Joint Tactical Group Station
JTASC – Joint Training Analysis and Simulation Center
JTAV – Joint Total Asset Visibility
JTEN – Joint Training Experimental Network
JTF – Joint Task Force
JTIDS – Joint Tactical Information Distribution System
JTRS – Joint Tactical Radio System
JTT – Joint Tactical Terminal
JTT/TA – Joint Training Task
JVB – Joint Visitors Bureau
JWAC – Joint Warfare Analysis Center
JWARN – Joint Warning and Reporting Network
JWFC – Joint Warfighting Center
JWICS – Joint Worldwide Intelligence Communications System
KBPS – Kilobits per second
KW - Kilowatts
LIDB – Logistics Integrated Data Base
LMTV – Light Medium Tactical Vehicle
LNO – Liaison Officer
LOG WEB – Logistics Web
LOS – Line of sight
LRM – Long Range Missile
LSOC – Landwarnet Support Operations Center
LSR – Local Service Request
LTPO – Lower Tier Project Office
LTU – Line Terminating Unit
LVPS – Low Voltage Power Supply
MACS – Marine Air Control Squadron
MAGTF – Marine Air Ground Task Force
MAN – Metro Area Network
MCS – Maneuver Control System
MCS-Lite – Maneuver Control System (Lite)
METT-TC – Mission, Enemy, Troops, Terrain, Time, Civil Considerations
MIDB - Military Intelligence Database
MITT – Mobile Integrated Tactical Terminal
MMEWR – Minimum Mission Essential Wartime Requirements
MRE – Meal Ready to Eat; Mission Rehearsal Exercise
MSEL – Master Scenario Event List
MTOE – Modified Table of Organization and Equipment
MTS – Mobile Tracking System
MUA – Maneuver Unit of Action
MUX – Multiplexer
NC – Node Center
NDRS – National Detainee Registration System
NFIP – National Foreign Intelligence Program
NGREA – National Guard and Reserve Equipment Account
NIPR- Non-Secure Internet Protocol Routing
NTSR – Nothing Significant To Report
OA – Operational Architecture
OCAR – Office of the Chief of the Army Reserves
OIT – Office of Information Technology
O & O – Organization & Operations
OSD – Office of the Secretary of Defense
OSMIS – Operating & Support Management Information System
PADIL - Patriot Air Defense Information Language
PBUSE – Property Book and User Supply - Enhanced
PDC – Program Designator Code
PEG – Planning & Engineering Guide
PHIT – Port Handling/Inland Transportation
PKI – Public Key Infrastructure
PMO – Production Management Officer(s)
POM – Program Objective Memorandum
PTC-AIMS – Portable Transportation Coordinator – Automated Information for Movements System
PTP – Peer to Peer
RADC – Regional Air Defense Commander
RAF – Royal Air Force
RCC – Regional Combatant Commander
RCV - Receive
RETAIN – Real Time Automation Information Network
RF – Radio Frequency
RFID – Radio Frequency Identification Device
RICO – Regional Interface Control Cell (USMC)
RICO-S - Regional Interface Control Cell (South)

TSM update

Updates from Training and Doctrine Command systems managers for satellite communications, tactical radio and Warfighter Information Network-Tactical

You're deploying, it's 2300 hours - do you know where your SCAMPs are?

By Dean Hokrein

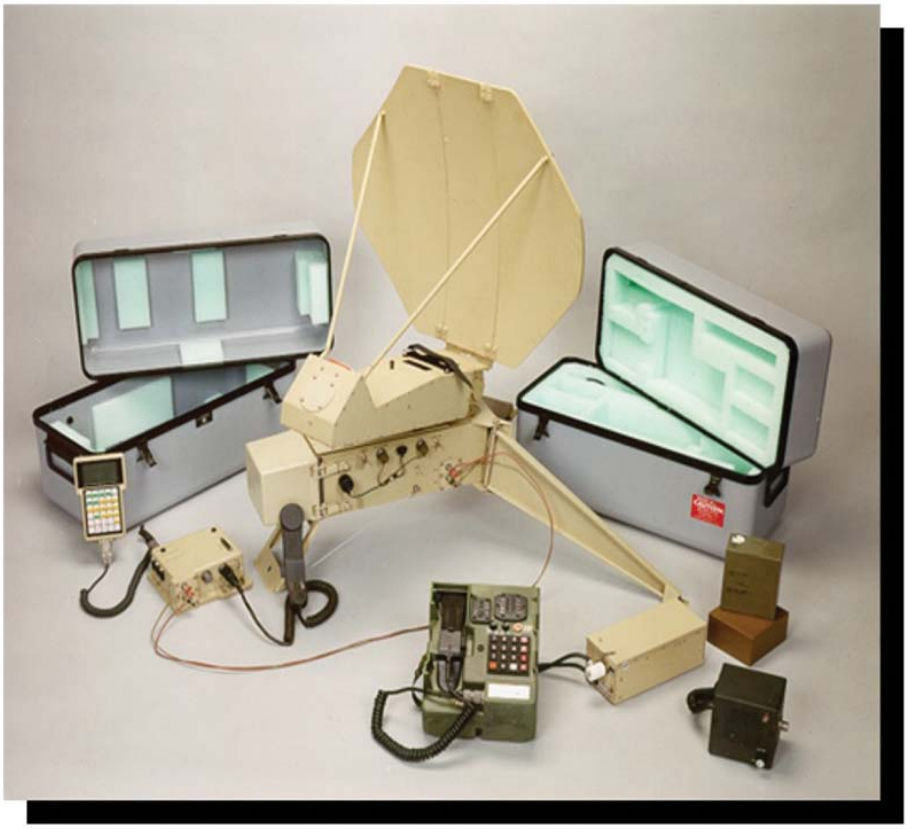
It's not just a take-off of an old late night TV public service announcement. It's a valid question regarding the whereabouts of a capability to meet a critical need. Every time a deployment occurs, the information requirements seem to exceed the communications resources available. A Soldier may ask –"Why don't I have all that I need?" A better question would be – "Am I using all that I have?"

Between 2000 and 2002, there were 346 AN/PSC-11, Single Channel Anti-Jam Man-Portable terminals fielded to Army Corps and Divisions. The SCAMP was fielded as an EHF low data rate terminal to meet protected beyond-line-of-sight requirements with low probability of detection/low probability of intercept in a package which did not require a vehicle to carry it. The SCAMP terminal can access three different extremely high frequency satellite constellations [Fleet Satellite EHF Package, ultra high frequency follow-on/enhanced EHF, and Milstar] worldwide with crosslink capability.

However, with all these communications capabilities available in a portable package, an overwhelming number of SCAMP terminals have not accessed a satellite since fielded units received new equipment training. Only the Special Operations Forces community and a few units at Fort Bragg (such as the 35th Signal Brigade) seemed to have embraced the capabilities offered by the SCAMP.

Why has this occurred?

Perhaps it was the lack of hype. Maybe the SCAMP did not get the publicity and promotion it deserved throughout the fielding process. Soldiers were trained how to operate the SCAMP and what kinds of things it could be used for, but they were not adequately aware of what exactly to use it for. Although the SCAMP was designed, built and fielded based on validated requirements, there was little guidance on its specific use. In the absence of definitive guidance and architecture, the SCAMP seemed to fall into relative obscurity during the network planning phases of operations and exercises.



AN/PSC-11, SCAMP

Other problems arose. Operator issues surfaced. The terminal's design intent was to be easy to use. This deemed the SCAMP a "general purpose user" piece of equipment with no dedicated operator MOS assigned to it. But the SCAMP turned out to be not quite as simple to set up and operate as single channel "push-to-talk" radios.

However, the EHF LDR waveform and satellite payload design impacted some of the terminal set-up and operational procedures. Since it was a "systems" issue (satellites and terminal use must be carefully planned), using the SCAMP required a competent planner who was trained on the EHF communications planner tool to plan networks and build terminal images.

This planning tool is quite complex and proficiency requires routine use. Over time, personnel changes and the failure to use and maintain perishable skills broke the continuity of expertise needed to sustain the skills required to operate the SCAMP. Use of the terminal fell

into the "too-hard-to-do" category.

Granted, the SCAMP is packaged in two large cases that may be a little cumbersome to jump with from the door of a C-130. However, there are organizations using the terminals successfully and "Airborne" is still their last name. Claims that the SCAMP is just too big for what it provides are unfounded, especially when units complain they do not have enough communications resources.

Do you have a communications requirement to reach a small enclave, a higher echelon, an allied or Joint Task Force liaison? What about providing a long-local or reachback command and control capability from lower to higher in an austere environment? How will you keep a network from becoming truncated or fragmented? Can you support a convoy while at the halt/pause? How about supporting airfield or port operations to monitor and report Timed Phase Force Development progress? In any of these scenarios, the SCAMP can provide you protected voice and data links to get the job done.

Sure, there are other ways to do these missions, other single-channel satellite radios. There's Inmarsat, Iridium and a host of other handheld, commercial cell-phone-like options. But are there enough of those resources to support every manpack communications requirement? Can your unit afford them? The cost of employing a SCAMP is one SAR, (that's a Satellite Access Request, not a Saudi Arabian Riyal).

The low data rates for EHF are not all that impressive, only up to 2.4 kbps for a single channel link. Don't expect any streaming video going over SCAMP. There are four 2.4 kbps channels and some Special Operations Forces community users have developed procedures that sequence the four discrete channels through a linking device to provide a virtual 9.6 channel.

Because UHF resources are oversubscribed and gaining access is difficult, using the available EHF resources that SCAMP provides offers another alternative to fulfill some requirements that cannot be met by UHF.

So what are the real requirements for the types of scenarios mentioned above? What data rates are provided via those other methods, and what are you paying for them? I bet it's more than a Saudi Arabian Riyal.

Watch for future articles on SCAMP, they'll be served up like a meal. This article is only an appetizer and will be followed with a more technical salad of specific success stories, network diagrams, and procedures (such as the SOF-developed extension of single circuit throughput). For the main course, expect a green network demonstration (vice a vender demo) in a future SATCOM User's Conference. And as with most meals worth eating, dessert is often the best part. That should be your own successes once you start capitalizing on a capability you already have.

So, where are your SCAMPs right now?

Please send any feedback on SCAMP experiences (good, bad, and ugly) to Dean-Hokrein@us.army.mil. Any information on specific applications with as much technical details as possible is welcome.

Mr. Hokrein is a retired warrant officer with more than 26 years of extensive experience in tactical networks/switching management as well as communications security. He teaches tactics, techniques, and procedures for Secure Mobile Anti-Jam Reliable Tactical Terminal and is responsible for writing and producing the tactics,techniques, and procedures manual for the SMART-T. Hokrein currently provides contractor support working as a satellite systems analyst and for ITAC and the TRADOC System Manager for Satellite Communications at Fort Gordon, Ga.

Acronym QuickScan

C2 – command and control
COMSEC – communications security
EE – Enhanced EHF
EHF – Extremely High Frequency
FEP – FLTSAT EHF Package
FLTSAT – Fleet Satellite
JTF – Joint Task Force
LDR – low data rate
LPD/LPI – Low Probability of Detection/Low Probability of Intercept
MOS – military occupational specialty
NET – new equipment training
SAR – Satellite Access Request
SCAMP – Single-Channel Anti-Jam Man Portable
SMART-T – Secure Mobile Anti-Jam Reliable Tactical Terminal
SOF – Special Operations Forces
TPFD – Time Phased Force Development
TSM SATCOM – TRADOC System Manager Satellite Communications
TTP – Tactics, Techniques, and Procedures
UFO – UHF follow-on
UHF – Ultra High Frequency

MBITR communications = power in your pocket

by LTC (Ret) David M. Fiedler

Ever since the United States (horse) Cavalry developed a requirement in the early 1920s for a battery-powered radio that could be operated and held with one hand while on a moving horse, the Army has loved the idea of hand-held radio communications. Through the decades the hand-held radio idea has been developed and refined with some notable successes such as the vacuum tube and crystal technology SCR-536 walkie-talkie of World War II and the AN/PRC-6 handy-talkie of the Korean War era.

We also produced some not-so-good equipment for this mission like the unpopular AN/PRT -4, AN/PRR-9 separate pocket transmitter and receiver of the Vietnam decade.

During the 80s and 90s several attempts were made to standardize hand-held radio requirements that resulted in the procurement of good equipment such as the AN/PRC-68 Small Unit Transceiver, and its product line improvement the AN/PRC-126 and the AN/PRC-127. None of these handheld radios proved very popular for Army wide use for many reasons.

For example, the 68/126 operated single channel only and in the 3080MHz tactical frequency band making them interoperable only with itself, single-channel ground to air radio system, AN/PRC-77 or AN/VRC-12 family of tactical FM radios and even then only in the non-ECCM (hopping) mode. This made the equipment useless for other critical tactical missions that are vital for small units. Use of this restricted frequency band made these radios not interoperable with a host of aircraft, maritime, civil, search and rescue

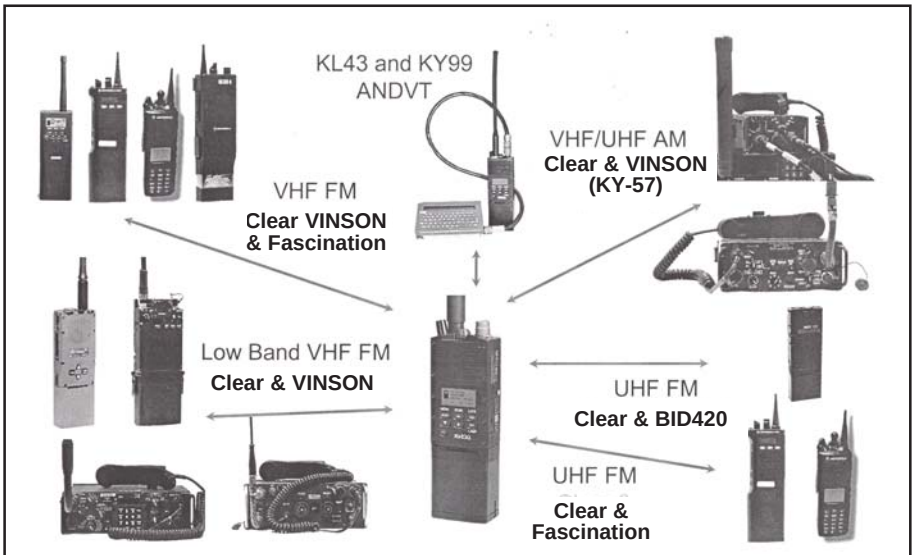


Figure 1 - AN/PRC 148 Radio Interoperability

and special mission radios and waveforms used by the Army and the Air Force that small tactical units really needed to communicate with. The AN/PRC-127 operated in only the 136-160MHz FM frequency range making it interoperable only with another hand held AN/PRC-127 and nothing else in the Army tactical radio inventory. No base-station or vehicle configurations were provided with the AN/PRC-127 so system applications were very limited. In addition AN/PRC-127 could not produce Amplitude Modulation so it was useless for ground-to-air military communications even though it operated in part of the military aircraft VHF-AM frequency range. While the AN/PRC68/126 did have a U.S. type-I COMSEC capability (SVM-II secure voice module) COMSEC was cumbersome to use and was not distributed in large numbers in spite of a still existing today Department of Defense edict that all tactical communications would be encrypted. The 127 not only operated in a nonstandard frequency range (l36-160Mhz, FM) it also had no COMSEC protection at all so the utility of the radio was severely limited for combat communications applications. The AN/PRC-127 was quickly relegated to "administrative uses" and proved again what a poor idea it is to have different radios in combat support and combat service support units that could not interoperate with common tactical combat net radios in combat units and could not provide secure communications.

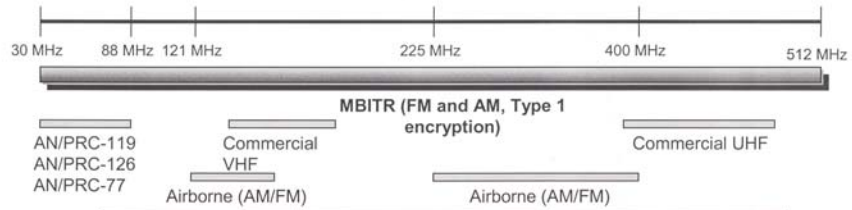
The folly reached new heights when this equipment was deployed since both types could not communicate with the most common aircraft radios that use still other frequency bands and different modulation modes (AM)! The lesson here is that all ground tactical units including combat support and combat service support units rely each other and on aircraft in operations and need to communicate across all force compo-

nents securely to be effective! The idea that parts of a force can use unique radios and operate in a communications vacuum just doesn't work or make sense.

By the late 1990s into this tactical communications jumble stepped the U.S. Special Operations Command whose communicators woke up and saw the value of handheld tactical radio communications that could operate across all frequency bands, modulation modes, and waveforms being used in the DoD. SOCOM had long rejected the "big" Army's requirements and material development process so they went forward to develop a handheld radio using their own requirements and procurement methods. The result of this effort was the development of a new and unique handheld radio named the AN/PRC-148 or Multiband Inter/Intra Team Radio. MBITR went into full production in FY-2000.

With the advent of the Transformation Army, the Stryker Brigade Combat Teams and the deployments to Afghanistan and Iraq the "big" Army was forced to confront its lack of critically needed secure, broad frequency band, handheld radio communications head on just like SOCOM had done a few years before.

Very fortunately for the Army, the SOF community had already completed the engineering development and competitive procurement of the AN/PRC-148 just when the post 9/11 Army most required this capability. Even more fortunately, SOF contracting officials were smart enough to include large numbers of radios as options on the basic AN/PRC-148 procurement contract thus throwing the door open for mass procurement by the "big" Army. As a result of this good fortune, large numbers of AN/PRC-148s are now finding there way into Army units as commercial off-the-shelf /non-development items for both voice and data communications applications. Because of the influx of mass quantities of these new hand held COTS/NDI transceivers into the force, now is the right time for the



Interoperability Test Radios Tested	Demonstrated						
	AM	FM	PT	CT Speed	KY-57 External	LOS	NLOS
AN/PRC-119 – SINCGARS		X	X	16		X	
PRC6725E – Pintail		X	X	16/12		X	
AN/PRC-117A/D	X	X	X	16		X	
AN/PRC-113	X		X	16	X	X	
AN/PRC-112A/C	X		X			X	
MX-300B6/B12		X	X	12		X	
TR720A/B/C		X	X			X	
Saber5/G6		X	X	12		X	
PSC-5A/B/C/D/E/F/G/H/I	X	X	X	16		X	X
LST-5C			X	16	X		X

Figure 2 - AN/PRC 148 Compatibility Matrix

Signal community to understand just what an AN/PRC-148 is and how can it best serve the Army. Under the "modularity" concepts now being implemented, commanders will inevitably hold their Signal Officers responsible for proper operation and support of this equipment even though Fort Gordon and Fort Monmouth had nothing to do with the requirements or the engineering development of this radio. While many would like to consider it to be "user owned and operated" and therefore not really Signal equipment that argument will not survive in today's force.

The AN/PRC-148 (see Fig.1) is currently used throughout the U.S. Department of Defense and also by other allied governments. The radio was developed by U.S. Special Operations Command primarily to reduce the physical signal equipment load on the individual SOF soldier while at the same time enhancing mission communications interoperability capabilities. Prior to the development of the AN/PRC-148 individual SOF unit S-6s tailored to their mission requirements a huge variety of existing tactical radios all operating on small portions of the 30-512MHz frequency spectrum (see Fig. 2) that all used different waveforms and modulation schemes. What the AN/PRC-148 provides in a single package is a highly flexible tactical communications solution useful over a very broad range of combat environments. As a small example, before the AN/PRC-148 many units man-packed separate AN/PRC-119s (SINCGARS) for ground-to-ground communications (30-88MHz), and AN/PRC-113s for ground-to-air communications (115-150 & 225-400MHz) on each mission. This way of operating was complicated and prone to cause operational mission failures when only a single radio malfunctioned because each operated in different frequency bands. The AN/PRC-148 successfully solved the multiple radio problem using one secure, light weight, high performance, hand held package that could be issued redundantly and thus serve as its own backup radio. In addition due to its reduced size, weight, and power consumption characteristics, many additional radios could be carried if needed without increasing the space, weight, and power budget for the mission. So what exactly is this wonder radio?

The AN/PRC-148 arguably the world's smallest and lightest full-featured Combat Net Radio, is a 31 ounce 34 cubic inch radio package produced in urban and maritime versions. Both versions are the same radio however the maritime version will function after emersion in 20 meters of saltwater while the urban

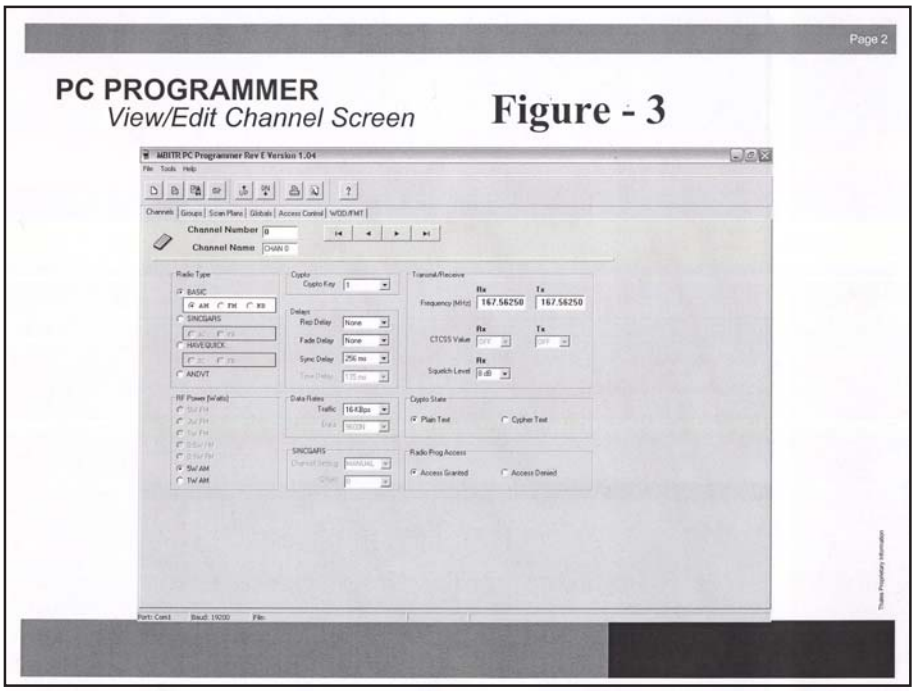


Figure 3 - PC Programmer

version is constructed to withstand emersion up to two meters. Both versions provide the following technical characteristics:

- 30-512 MHz continuous frequency coverage - within this frequency range the radio operates in analog (clear) and COMSEC protected (digital) voice and data modes including 5 and 25 KHz dedicated channel SATCOM.

- AM, FM, FM narrow band analog modulation and shaped binary phase shift keying (SBPSK) digital data modulation capability

- Operator selectable existing standard military electronic countercounter measure waveforms - software options include SINCGARS, HAVEQUICK IIII, and ANDVT waveforms and a retransmission capability compatible with existing equipment.

- Data rates of 12 or 16 kbs (operator selectable) - interoperable with FED-STD-1023 (l2kbs) and VINSON family (l6kbs) COMSEC.

- User selectable power output .1-5 watts

- Embedded U.S. Type 1 COMSEC - VINSON and ANDVT

COMSEC is imbedded in the radio. NSA has granted 12 Type 1

COMSEC endorsements for this radio.

- Digital Signal Processing architecture - base-band and modulation/demodulation (MODEM) functions are done in digital software. 5 and 6.25 KHz channel spacing with bandwidths of 5 and 25 KHz are provided.

- Frequency Scanning (256 programmable channels, and up to 10 scan plans of up to 16 channels each)

- Whisper mode for clandestine operations.

- GPS interface to PLGR for applications requiring accurate time of day or location information.

- Emergency AM Swept Tone Beacon for use in radio direction finding and Search and Rescue applications.

- Transmit unique ID code and position, receive/store position information from other AN/PRC-148s for blue force tracking.

- Secure Retransmission mode so that two AN/PRC-148s can retransmit communications using the same or different (crossband) waveforms and frequencies. In addition RETRANS functions are true signal repeaters and do NOT require COMSEC keys at the RETRANS station so system security is enhanced.

- Can accept over-the-air re-key and electronic-remote-fill from other radios.

- Lithium- Ion Battery - very high energy density rechargeable batteries.

- Dual Antennas - 10-inch rubber covered wire wound helix "rubber ducky" for operations above 90MHz, I-meter metal tape (SINCGARS type) antenna for operations below 90Mhz. Operator selectable for most efficient operation (see Fig 3).

- Holster - Attaches AN/PRC-148 to pistol belt, rucksack, ALICE or MOLIE load bearing equipment.

- Carry Bag - holds radio, spare battery, high and low band antennas, audio adaptor, and military handset.

In addition to the basic AN/PRC-148 hand held transceiver there are several items of associated equipment that when used with the basic radio makes it even more effective and soldier friendly. These items include:

- Windows based radio programmer software. Since the AN/PRC-148 is truly a "software defined radio" it is provided with a computer interface and software that will allow systems management personnel to perform radio programming functions from a computer data file such as view or edit channel frequencies or channel groups, enter a scan plan, enter waveform information, set transmission mode parameters, and other setup functions. (See Fig 3.)

- Retransmission kit that includes retransmission data cables, frequency specific filters and antenna cables. (See Fig 4.)

- Audio accessories including headsets optimized for urban and maritime operations, a lightweight headset and a speaker/microphone. (See Fig 5.)

- Several types of battery chargers including a single battery charger, an AC only six battery multi-charger, an AC/DC 6 battery multicharger and a two radio power supply/rugged battery charger that with a little imagination can also be

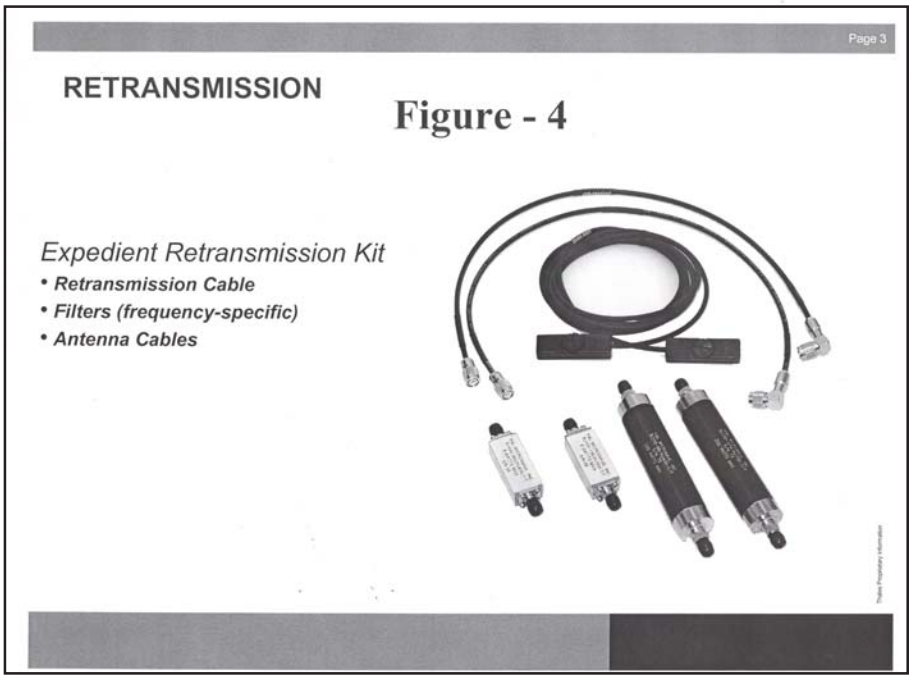


Figure 4 - Retransmission Kit

mounted as a low power vehicular or base-station.

- A special power adaptor/ interface that charges the battery and operates the radio at the same time. This adaptor can accept power (12-32 volts DC) from solar panels, hand crank generators, or other batteries such as the BA-5590 for operations and/or lithium-ion battery charging.

- A vehicle adaptor (VA)/ power supply/RF power amplifier (20 watt) that will provide an electrical power interface to a vehicle and a 30512 MHz SINCGARS and HAVE QUICK interoperable radio frequency amplifier that provides five or 20 watts FM or 20 watts AM power output. The VA does not hinder the radio from being dismounted and operated "jerk and run" style as a handheld radio. (See Fig. 6.)

The AN/PRC-148 was built for frequency and waveform interoperability with legacy systems but also with an eye toward future developments. Melding many existing capabilities into one handheld radio that would interoperate with virtually any common U.S. military or commercial waveform operating in the 30-5l2MHz frequency range was the driving idea for this radio. In the 21st Century, it made no sense to have Soldiers on foot lugging a 15 pound 4 watt VHF (30-88Mhz) only radio (SINCGARS) incapable of performing many critical operational functions required of modem land force communications. The AN/PRC-148 due to its wide frequency spectrum (30-5l2Mhz) can perform functions such as ground-toair, ship-to-shore, SATCOM, civil-military and coalition communications using only a single two-pound radio with a power output of up to 5 watts. Not only does the AN/PRC-148 contain a transceiver capable of operating over an extended frequency band when compared to its predecessors it also has self contained virtually all of the most widely required voice and data waveforms such as SINCGARS SIP & ESIP, HAVE QUICK I&II, ANDVT along with and appropriate COMSEC (VINSON, etc.) to assure full interoperability. While wideband UHF satellite communications is also a capability of the AN/PRC-148 it was designed prior to the decision that limited most military SATCOM users to the Demand Access Multiple Assignment waveform in order to increase the number of SATCOM communications channels available. While the lack of a DAMA waveform doesn't put an AN/PRC-148 user out of the SATCOM business it does pose a significant operational problem for the user. Getting a wideband UHF SATCOM channel assignment is very difficult in certain parts of the world these days and such assignments will only go to high priority users. Fortunately, the vast majority of AN/PRC-148 users are not interested in getting SATCOM access for beyond line-of-sight communications. In addition to the lack of DAMA waveform users desiring to use the AN/PRC-148 for SATCOM also need to overcome the problems of low (five watt maximum) output power and inefficient antennas. Fortunately, the designers of the AN/PRC-148 anticipated this sort of thing and provided a common threaded "N" connector for the radio antenna output port so that virtually any type of higher efficiency or directional antenna can be connected to the radio's output. Similarly, using the 20-watt power output of the VA/power amplifier associated with the radio can solve the low power problem. There are also several commercial power amplifiers available that can be bought and used to increase the AN/PRC-148s output power for both SATCOM and LOS communications. It is widely accepted among the services that this design goal has been achieved. See Fig. 2 for more data on the legacy radio equipment that AN/PRC-148 is compatible with.

System management of the AN/PRC-148 radio is of vital interest to the S-6 as it will be a job requirement for the S-6 at all echelons. To manage the quantity of radios (approximately 450-700 per brigade) a Windows based PC radio programmer is provided. While all radio functions can be accomplished through the individual radio control panel if required, it would be very difficult to set up the radios for a battalion or larger force manually using radio front panel controls. The PC programmer has a simple Windows "look and feel" man

machine interface that allows uploading and downloading information such as assigned frequency lists, waveform data, power level etc. to the radio. Once a radio is loaded with system information, it can be used to distribute this information (clone) to another AN/PRC-148. Once the unit signal officer has designed an AN/PRC-148 system this cloning feature allows the S-6 system manager to distribute technical information down the tactical echelons to each individual radio in a command without fear of mistakes being made or data being corrupted. All that is required is a simple cable that connects between the radios. This is much better for the S-6 than trying to get all the users in a circle to assure that the right buttons get pushed at the right time as was the case in the past. COMSEC key loading is accomplished by using standard COMSEC key loading devices as with all Army combat net radios.

Because of its SOF origins, the AN/PRC-148 has self-contained features and capabilities that make it more than just another Army CNR. For example, each radio comes with a Precision Lightweight GPS Receiver interface. This interface enables the radio to download and use location and time data from the GPS navigation satellite system. Each AN/PRC-148 has a unique identity number. This number can be securely transmitted along with the GPS location data to an automated command and control system or another AN/PRC-148. Properly equipped commanders can then identify and track AN/PRC-148 user locations by entering them into a database such as FBCB2, MCS, or BFT. From the unit perspective this again reduces the load on the Soldier but it also makes a radio into a powerful C2 and anti-fratricide tool for the combat commander.

Another fantastic feature of the AN/PRC-148 is its ability to communicate with aircraft. Foot Soldiers of the past using standard handheld or man-pack radios were restricted to ground tactical-radio modulation

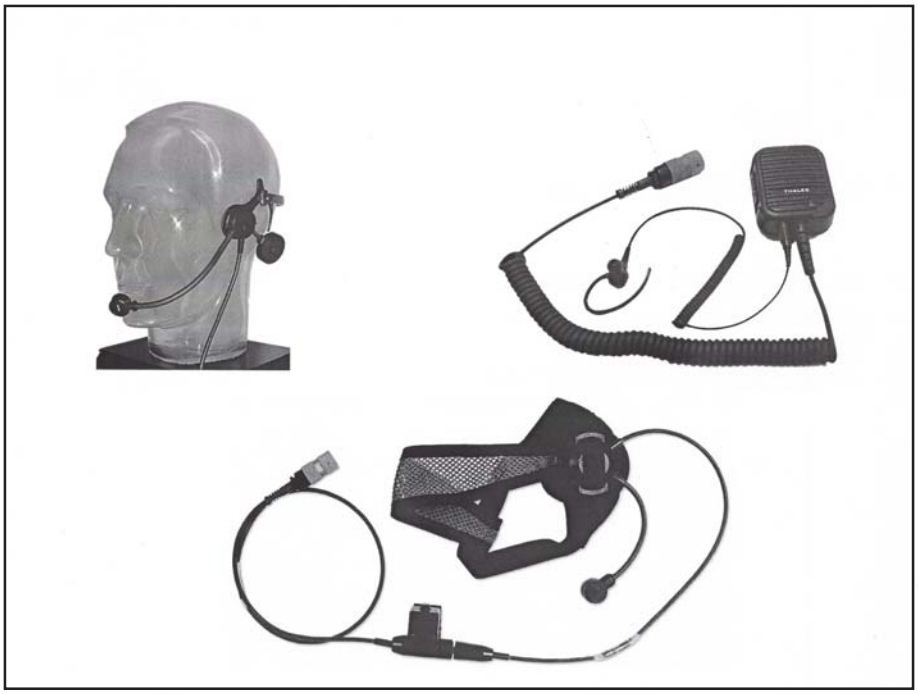


Figure 5 - AN/PRC -148 Headphones and Speaker Microphones

modes and frequency bands (30-88MHz FM) that were not compatible with the radios in all military aircraft. While some Army and USAF aircraft could operate in the 30-88MHz FM mode, a great many could only operate in either the 115-150MHz AM or the 225-400MHz AM mode. Civil, other service, other government agency, and coalition aircraft mostly cannot operate in the ground tactical frequency band (30-88MHz FM) at all. The AN/PRC-148 solves the air support communications problem by being able to communicate with the most common aircraft radios. The AN/PRC-148 can also generate the HAVE QUICK - I and HAVE QUICK - II ECCM waveforms used extensively by the U. S. Air Force. This assures that close air support communications can be provided to AN/PRC-148 users down to the lowest tactical formation where before it stopped at the battalion level, quite an improvement in air-ground coordination capability and fratricide reduction.

There is even more good news for troops equipped with the AN/PRC-148 from the ground-to-air perspective. The radio has built in the ability to generate emergency AM swept tone beacon signals on the standard VHF and UHF international rescue frequencies of 121.5 MHz (AM) and 149.975MHz (AM). This capability means that AN/PRC-148 users can be heard by virtually every aircraft in the world and located with common aircraft radio direction finding equipment. This feature can literally be a lifesaver when in tactical situations requiring help from airborne search and rescue assets. The good news still keeps coming.

Our enemies in the world have been known to monitor the well-known international rescue/beacon frequencies in order to locate U.S. forces on the ground and SAR aircraft supporting them. They then use this information to attack the force on the ground and the supporting aircraft (see *Army Communicator*) AN/PRC-148 thwarts this tactic by being able to send beacon signals on any aircraft band VHF or UHF frequency selected by the unit S-6. The beacon on/off time can also be adjusted to make exploitation by an enemy even more difficult. By coupling the location capabilities (GPS or EAST beacon) and the ECCM communications capability of the radio (SINCGARS or HAVE QUICK-IIII ECCM waveforms), and

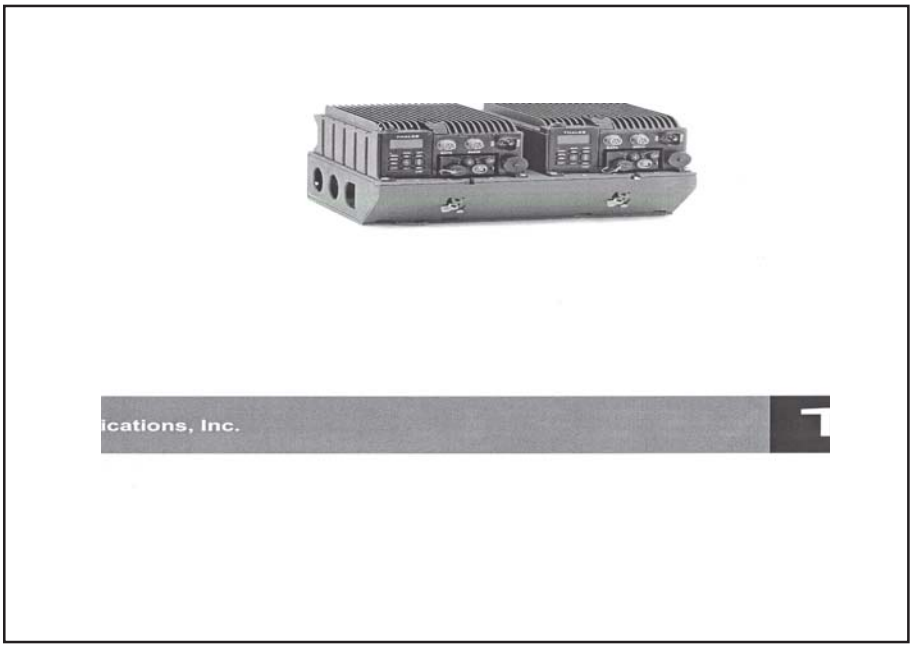


Figure 6 - MBITR Vehicle Adapter Amplifier (MBITR VAA)

also adding the self contained COMSEC capability, use of the AN/PRC-148 makes secure ground-to-air communications, SAR operations, and geo-location easy for us and very hard for our enemy to exploit. Quite an advancement if your unit has AN/PRC-l48.

The AN/PRC-l48 advances the art of tactical communications in other areas as well. In small tactical units area coverage and distance extension has always been a problem. In urban operations communications inside buildings or over urban terrain has been a real challenge to the S-6s in the force. For these conditions the AN/PRC-148 system provides a "back-to-back" (two radios) retransmission capability for both COMSEC and plain text modes. The only hardware required for retransmission beside two radios is a small cable kit and some electronic filters (see Fig 4). When configured for retransmission operations, a true digital repeater (digi-peater) is formed. Since the digits transmitted are merely being repeated by the radios they do not degrade signal quality and the radios don't have to have any COMSEC keys loaded in them. While leaving a repeater station unmanned in an unprotected area is probably not a good idea (even unkeyed radios are COMSEC controlled items) it could be done since capture of an AN/PRC-148 retransmission station still won't compromise net transmission security.

In the 21st Century no military radio can be fully useful unless it has the capability to send digital data. This capability is a must because data terminal equipment such as laptops, small digital message terminals, digital cameras and other DTE exist in many cases down to the soldier level in our current and future force. This terminal equipment requires a "data link" in order to move information among devices and/or data facilities even at the lowest echelon. It would be silly for any user, particularly a dismounted Soldier, to need to carry both a voice radio and a data transmission device for this purpose. Therefore, the AN/PRC-148 has been designed also as a digital data transmission device. The radio is designed to work only with encrypted data using the basic (FM), SINCGARS, HAVEQUICK (single channel) and ANDVT modes. The AN/PRC-148 is configured to accept inputs from common data controllers such as the commonly available ViaSat VDC-200/400 family of controllers. Data can also be sent over the AN/PRC-148 using a common Personal Computer 25-pin serial data output connector. When in the data mode of operation for data applications such as "collaborative planning", "sensor-to-shooter" communications, situation awareness, etc., control of the radio is fully transferred to the data device when the radio is in the data mode in order to take advantage of the processing power contained inside the DTE.

When in data mode the AN/PRC-148 becomes a true "data pipe" for the terminal equipment. Switching back to voice mode relinquishes control of the radio back to the operator but the DTE doesn't have to be disconnected in order to again operate as a voice radio.

As has been often stated, antenna and operating frequency are the key factors that determine the success of any radio system. The antenna is even more critical in a handheld radio because of size, weight, and operator handling issues. Obviously a hand-held radio's antenna cannot be too big or the radio becomes too cumbersome to handle. If the antenna is too small it cannot be matched to the operational frequency very well (particularly the lower frequencies) so radiated and received signal strength suffer. To obey the laws of physics, the AN/PRC-148 provides two antennas. One is a 30512 MHz broadband "rubber ducky" antenna commonly seen in radios of this type. Unfortunately, while the antenna will operate below 90 MHz its losses (see Fig. 7) due to physical size are considerable when compared to a standard I-meter military metal tape antenna such as the one used with SINCGARS. Because of this, both types of antennas are supplied but the 1meter metal tape is recommended when operating in the ground tactical band below 90 MHz. In addition to the antennas supplied, the antenna connector on the hand held radio will accept a common coax antenna cable connector. This handy feature means that a wide variety of 30-512 MHz antennas including the highly effective COM-

201 ground tactical band self supporting ground-plane antenna (see *Army Communicator* Winter 2002) can be used with the AN/PRC-148 when selected to fit mission requirements.

Advanced battery technology has also been included in the AN/PRC-148 package. An improved Lithium-Ion battery that provides more than 10 hours of operational life (assuming a 8: 1: 1 standby, receive, transmit ratio) on the highest transmitter power setting (5 watts) is provided with the radio. This battery which produces 4.4 ampere-hours of power is fully rechargeable and also has a built in charge meter to take the guesswork out of knowing the battery-charge status. In addition a battery box is also provided that will allow the use of non-rechargeable (disposable) standard commercial batteries in situations where use of a battery charger is impractical.

A look to the future - AN/PRC-148 and the Joint Tactical Radio System

JTRS the U.S. DoD Program designed to develop a common architecture for all services tactical radios. The Army has declared JTRS to be the radio communications architecture for the Future Combat System, which by definition is the set of war fighting tools that the Army will carry well into the 21st Century. The JTRS program is targeted on software-based radios that can be easily upgraded to meet mission requirements. Since the JTRS is to be software based it will be capable of accepting and operating the waveforms from legacy systems such as SINCGARS and HAVE QUICK or new waveforms developed for the JTRS. The AN/PRC-148 has already been selected as one of the stepping-stones to a JTRS compliant system. In order to take this step the AN/PRC-148 will replace two existing hardware assemblies (front panel and COMSEC control assembly's) and modernize its security module. These upgrades will provide a JTRS compliant digital structure that allows the use of the JTRS software library including trunking and other options across the current RF band

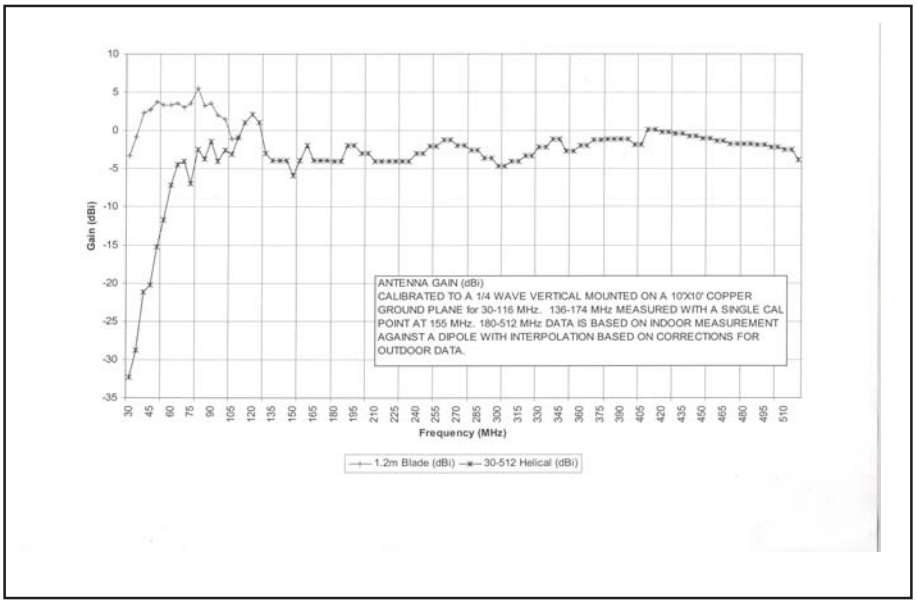


Figure 7 - MBITR Tactical Antenna Gain

of the radio (30-512MHz). While the upgrade to the AN/PRC-148 (known as cluster 2 block 1 JTRS handheld) doesn't make the radio fully JTRS compliant from a frequency perspective and may be lacking in some other JTRS features it certainly produces a good radio that can function in the JTRS world for many years. This effort both reduces cost and increases interoperability for near term operations.

Clearly the AN/PRC-148 is on the leading edge of hand held military communications technology. This single 31 ounce device virtually obsoletes whole families of current bulky (by comparison), frequency band limited, COMSEC or ECCM restricted, radio equipment. Simultaneously, the AN/PRC-148 takes the first steps toward the JTRS capability demanded by the Future Combat System. It is very significant in my opinion, that the team that won the JTRS development award for hand held and man-pack radios included Thales Communications Inc. the producer of the AN/PRC148. Thales is generally considered an industry leader in military hand-held communications. As a speculation on my part, this award could be considered a good indication that the services are thinking that ultimately, the hand-held JTRS radio in various man held and vehicle configurations will be the hardware that the bulk of the force will use. Consequently, the award went to a leading hand-held team instead of one strong in other configurations of tactical-radio technology. In a time when things like Nextel cell phones/wakie-talkies no larger than a pack of cigarettes already exist and our users see them every day, this is smart thinking! In light of the JTRS award and the success of the AN/PRC-148, Army decision makers must ask themselves, why anyone would consider spending one more dollar on any military or commercial handheld or man-pack CNR other than the AN/PRC148. Even today, there are those who would still permit procurement of cheap commercial radios with inferior COMSEC than that found in the AN/PRC-148. The danger of using inferior COMSEC for military uses is that compared to U.S. type-l COMSEC, the other stuff simply won't hack it.

The breaking of commercial COMSEC has literally become a high school science project. A simple search on the Internet will provide several information web sites dedicated to cracking current digital encryption standards, a detailed text book, and computer code along with

instructions on how build a DES breaking machine. Plenty of our enemies know how to read this book and use it. There is also an additional danger with military use of less than type-I COMSEC and that is when you give a typical Soldier a radio and tell them it is secure they will believe you. This generates a false sense of security and will lead to disclosure of all sorts of classified information over the radio because the operator did not understand that the COMSEC provided had limits. Just read Higginbotham's "The Ultra Secret" or view Project Touchdown by the National Security Agency to see what I mean! Over the years I have made a huge fuss about ignorant S6/G6 personnel who have permitted the use of non-secure commercial radios like CBs, Amateur (ham) radios of various kinds, FRS radios, GMRS radios, Business/civil agency (fire/police) band radios, Garmin Rino type radios, etc for military use. In spite of these warnings some seem to think that by changing names the COMSEC issues go away. To my horror, we are now seeing radios with names like Soldier Intercom and Personnel Role Radio appear in certain tactical units. Instead of providing US-Type- I COMSEC, and Low Probability of Intercept/Low Probability of Detection LPIILPD waveforms these radios rely on low power and hoping for the best to prevent enemy exploitation. The same goes for non-secure cell phones and wireless LANS.

Not a very smart course of action in view of the historical record. In our arrogance we have again assumed that no enemy can out think or out act us so we hand them critical information over the radio and claim that our actions are so immediate and our movements so swift that our enemy can gain nothing. Perhaps, before the la Drang Valley disaster (see *Army Communicator* Spring 2003) some could have made the case that we just did not have the proper COMSEC protected radio equipment available and what we did have was heavy, bulky and in very short supply. This cannot be said today. The AN/PRC-148 has the combination of frequency coverage, power, antenna, size, waveforms, ECCM and COMSEC that makes it not only the BEST choice but also the ***only*** choice until JTRS is ready. The Army already has thousands of AN/PRC-148s fielded and on order. While they are in short supply we must learn to make the best use of the secure radios we have and concentrate them where they are needed. The temptation to use cheap, readily available radios with limited or no COMSEC, operating in non-standard frequency bands and with no LPIILPD capabilities must be fought tooth and nail by S6/G6s at every level! If we don't then we might as well play Russian roulette with .45 automatics; the results will be the same.

Mr. Fiedler is a retired Signal Corps lieutenant colonel and retired senior Department of the Army electronics engineer. His last assignment as a DA Civilian was, Project Director Commercial Tactical Radios, a part of the Office of the Project Manager for Tactical Radio Communications Systems (PM-TRCS), Fort Monmouth, N.J. Past assignments include service with Army avionics, electronic warfare, combat surveillance and target acquisition laboratories, Army Communications Systems Agency, PM-MSE, PM-MCS, PM-SINCGARS PM-ASAS, PEO-C3S, and the Joint Tactical Fusion Program. Fiedler has served in Army, Army Reserve and Army National Guard Signal, infantry and armor units and as a Department of the Army civilian engineer since 1971. He holds a degree in both physics and engineering and a master's degree in industrial management. He is the author of many articles in the fields of combat communications and electronic warfare.

Acronym QuickScan

AM – Amplitude Modulation
BLOS – beyond line-of-sight
C2 – Command and Control
CCI – COMSEC controlled items
CNR – combat net radios
COMSEC – communications security
COTS – Commercial Off-the-Shelf
DAMA – Demand Access Multiple Assignment
DES – digital encryption standards
DSP – Digital Signal Processing
DTE – data terminal equipment
EASTB – emergency AM swept tone beacon
ECCM – electronic countercounter measure
ERF – electronic-remote-fill
FCS – Future Combat System
GMRS – General Mobile Radio Service
JTRS – Joint Tactical Radio System
LBE – load bearing equipment
MMI – man machine interface
MODEM – modulation/demodulation
NDI – Non-Development Items
NSA – National Security Agency
OTAR – Over-the-air re-key
PC – Personal Computer
PLGR – GPS Receiver
RDF – radio direction finding
RETRANS – Retransmission
RF – radio frequency
SAR – search and rescue
SATCOM – satellite communications
SBCT – Stryker Brigade Combat Teams
SINCGARS – single channel ground to air radio system
SOCOM – Special Operations Command
SUT – Small Unit Transceiver
TNC – threaded "N" connector
USSOCOM – U.S. Special Operstions Command

Circuit check

News and trends of interest to the Signal Regiment

11th 280th Signal Transfer of Authority in Iraq 'History in the making for Signal Community'

By 1LT Hyma Leatham

In late 2003, the 54th Signal Battalion of the 160th Signal Brigade had a problem. Rapidly expanding missions in Iraq were assigned to the battalion in order to relieve one-of-a-kind Signal units from the 11th Signal Brigade. Knowing the battalion was not resourced properly for the new missions, Network Command/9th Army Signal Command developed and implemented a plan to activate two active duty strategic signal companies and assign them to the battalion. Unfortunately, the earliest activation for active component companies was October 2005, far too late. NETCOM worked with the chief information officer/G6 and the Army Staff to develop a plan to fill the gap. The answer was the 111th Signal Battalion of the South Carolina Army National Guard.

In May 2004, Bravo and Charlie Company of the 111th Signal Battalion deployed to Iraq and were attached to the 54th Signal Battalion for Operation Iraqi Freedom. The current mission of the 54th Signal Battalion is to operate, maintain, and protect strategic and sustaining-base C4I systems within the Iraq Theater of Operations. The two companies of the 111th executed this mission under the command and control of the 54th Signal Battalion on 10 Camps and Forward Operating Bases throughout Iraq.

Bravo Company took charge of Victory Base in support of MNF-I and MNC-I. Charlie Company was based at LSA Anaconda/Balad Air Base. Both companies deployed Direct Support Signal Teams led by lieutenants and noncommissioned officers throughout Iraq to accomplish this mission. Some of the camps and FOBs included Victory Base South, LSA Anaconda, Camp Echo, Scania, Taji, Bucca, and LSA Adder.

CPT Jackson, CDR B/111th (left front), 1SG Owens, B/111th (left back), SPC Sorrenti, Guidon Bearer B/111th (center front), LTC Kite, 54th BN CDR (center back), PV2 Harrington, Guidon Bearer A/280th (center front), 1SG Fields, A/280th (right back), and CPT Drake, CDR A/280th (right front).

The 111th Signal Battalion serves as a premier Corps Area Mobile Subscriber Equipment communications unit from South Carolina. The 111th has performed magnificently throughout their tenure while tasked to organize the 54th Signal Battalion. During their time the units significantly expanded and improved both data and voice systems. They assisted with missions such as the building of Technical Control Facilities, three (Taji, Abu Gharib, and Adder) of which were built from the ground up, the installation of eight PROMINA Nodes and voice switching systems, and the installation of a critical secure command and control switch on Victory Base. The majority of the equipment that the 111th worked with was new to the Soldiers. They now are getting ready to return home with a wealth of knowledge.

On, May 9, 2005, a few days short of one year on the ground in theater, the 111th transferred authority of the O&M of the voice, data and video systems on eleven camps throughout Iraq to Alpha and Bravo Companies of the 280th Signal Battalion from Delaware. The 280th Signal Battalion is a dual state (Delaware and Connecticut) National Guard, DGM/TRI-TAC area Signal Battalion, preparing to transition to an Integrated Theater Signal Battalion within the next year. The Citizen-Soldiers of the 280th were called to active duty on April 3, 2005, to replace the 111th. The two Companies landed in Kuwait on May 5, 2005, and began their transition with the 111th a day later. With little time to spare Alpha and Bravo 280th hit the ground running getting as much information as possible from the Soldiers of the 111th.

With completion of the Transfer of Authority Ceremony, Bravo and Charlie Company, 111th Signal Battalion have officially relinquished the mission of providing critical command and control communications to the Multi-National Force – Iraq to Alpha and Bravo Company, 280th Signal Battalion. The 111th set a high standard for all signal units to follow during their time in Iraq. The 280th is moving forward and taking advantage of this opportunity not only to execute the Signal mission in Iraq but also to prepare their Soldiers for their new signal mission as an ITSB.

1LT Leatham is assigned to A Company, 280th Signal Battalion.

LTC Maria R. Drew selected for battalion command and as brigade officer of the year

FORT SHAFTER, Hawaii — It's been a red-letter year for LTC Maria R. Drew, U.S. Army, who was selected to command a signal

LTC Maria R. Drew

battalion in Okinawa this summer, and who was also selected as the Officer of the Year, 516th Signal Brigade.

Drew, a native of Enterprise, Ala., is the daughter of Barbara Holmes-Hampton of College Park, Ga., and Joel Ramsey of Miami, Fla., and the granddaughter of SFC (Ret.) Leslie V. and Bonnie R. Holmes of Enterprise. She is the daughter-in-law of Melvin, Sr. (deceased) and Mary E. Drew of Suffolk, Va.

She served as the chief operations officer, 516th Signal Brigade, Fort Shafter, Hawaii. Drew was selected by the Department of the Army late last year to become the next commander, 58th Signal Battalion, Okinawa, Japan, on Aug. 10, 2005.

"Maria's mission as battalion commander will be to provide global command and control communications, computers and logistics support to joint service warfighters and information technology support and inter-base communications to the U.S. Department of Defense community on Okinawa," explained her boss, COL Brian J. Donahue, commander, 516th Signal Brigade. "The 58th Signal Battalion is a critical and unique unit within our brigade, and Maria is an excellent choice to be at its helm."

In competition with other nominated officers from throughout the brigade's Pacific theater, Drew was selected as the 516th's Officer of the Year 2005. She and other federal agency Employees of the Year were honored by the Honolulu-Pacific Federal Executive Board at its annual awards luncheon June 8 in Honolulu.

Donahue praised her contributions to the brigade over the past year. "Maria orchestrated critical telecommunications projects throughout the U.S. Army Pacific theater in 2004, valued at more than $100 million," Donahue said. "With our Army at war, her oversight of these important projects — especially the successful transformation of the theater's computer network — dramatically enhanced USARPAC's (U.S. Army Pacific) readiness and operational posture."

Donahue added that Drew successfully managed the worldwide deployment of 150-plus brigade Soldiers in support of Operations Iraqi Freedom and Enduring Freedom, Tsunami Disaster relief efforts, and exercises in the Philippines, Japan, Thailand, Korea, and Australia.

"Maria ensured successful primary mission accomplishment while satisfying a 100 percent increase in USARPAC requirements for individual augmentee support in Kuwait, Iraq, Afghanistan, the Horn of Africa, and Honduras," Donahue said.

Donahue described Drew as a "natural people person." As chief operations officer, Drew supervises five staff sections and 97 assigned Soldiers, Civilian employees, and contractors, including the Theater Network Operations and Security Center, which operates 24 hours a day.

"Her sense of humor is a tremendous asset for offsetting the stress of continual high priority missions tasked to her shop," Donahue said. "While juggling critical missions, Maria nonetheless daily fosters teamwork, consideration of others, and *esprit de corps* among her staff.

She is admired and totally respected by all in the brigade, regardless of rank."

Drew was commissioned a second lieutenant in the U.S. Army Signal Corps in April 1986. To date, her 18-year military career has taken her to Fort Gordon, Ga.; West Point, N.Y.; Korea, Germany, and Hawaii, as well as a tour in Iraq for Operation Iraqi Freedom in 2003. She has earned the Bronze Star Medal, three Meritorious Service Medals, three Army Commendation Medals, and four Army Achievement Medals, among others.

She graduated from the High School of Art and Design, New York City, in 1982. Drew subsequently earned a Bachelor of Science degree from Florida A&M University, Tallahassee, Fla., in 1986; a Master of Public Administration degree from Georgia Southern University, Statesboro, Ga., in 1991; and a Master of Arts degree from Long Island University, Greenvale, N.Y., in 1996.

Maria Drew and her husband of 18 years, Derrick Drew, have three children.

Georgia National Guard's 48th BCT's logisticians train at NTC with CSS VSAT/CAISI before deployment to Iraq

By Stephen Larsen

FORT IRWIN, Calif. – During their April training rotation at the National Training Center, the Citizen-Soldiers of the Georgia Army National Guard's 48th Brigade Combat Team learned the lessons of those who came before them as they prepared for a year of duty in Iraq. One of those lessons is that the Army G4's initiative to 'Connect Army Logisticians' with Combat Service Support Satellite Communications systems is living to its advance billing as a combat multiplier.

The 48th's Soldiers have found that the CSS SATCOM systems – which include Combat Service Support Very Small Aperture Terminals in tandem with the Combat Service Support Automated Information Systems Interface, a

wireless interface which plugs the system into a local area network or into a wide area network – have increased their readiness by enabling them to electronically transmit supply requisitions and receive near-real time status reports on their orders, 24-hours-a day, seven-days-a-week.

COL Lawrence Dudney, the deputy commander and logistics manager of 48th BCT said that CSS VSAT/CAISI has helped the brigade realize the potential of the automated systems that arm, fuel, fix, move, and sustain the force.

"The system has enhanced our automation capabilities in the brigade and given us redundancy," said Dudney. "It's given us another opportunity to ensure ULLS-G (Unit Level Logistics System-Ground), SARSS (Standard Army Retail Supply System) and SAMS (Standard Army Maintenance System) traffic gets through."

"VSAT is great," said LTC Jeff Edge, commander of the 148th Support Battalion. "It allows uninterrupted service. Now, our units can communicate and don't have to worry about retransmitting."

"CSS VSAT/CAISI does everything it's advertised to do and more," said CW5 Robert Tadlock. "This is the best system I ever used - it's darn near fool-proof." He held up a chart showing the brigade's connectivity status for SARSS and ULLS-G. "Look, all of our units are green (operational)," said Tadlock. "We'd never have been able to that without the VSAT."

"We've had no outages – it's awesome," said MAJ Robert La Banz, the 48th's Combat Service Support Automation Management Officer, while CW4 Alvin Faulkner of the CSSAMO said he appreciates that CSS VSAT/CAISI provides the capability to transmit the "026" materiel readiness report generated by SAMS. "This is absolutely crucial," said Faulkner. "The 026 report tells the brigade staff the current maintenance status and gives a clear and accurate picture of the projected combat power for the fight, enabling the brigade staff to make effective military decisions. It's a big benefit."

A Soldier of the Georgia Army National Guard's 48th Brigade Combat Team changes a tire during the unit's April training rotation at the National Training Center, Fort Irwin, Calif. In the right background is the Combat Service Support Very Small Aperture Terminals that gave him the ability to order the parts he needs.

SFC L.A. Cain said CSS VSAT/CAISI gives the CSSAMO staff the capability of "more real-time reaction," such as allowing them to remotely correct ghost record deficiencies, while CWO1 Dextin Cobbs said, "with CAISI, you hit a button and (she snapped her fingers) – the requisition is gone – just like that." Cobbs said she is also impressed with the ePop software tool loaded onto the system, which includes features such as instant messaging, voice conferencing, application sharing, and help desk remote control, allowing the CSSAMO to centrally manage groups, security policy, features, and message routing across the brigade's entire enterprise.

While the CSSAMO Soldiers appreciate how CSS VSAT/CAISI enables them to do their jobs better, the brigades' users appreciate the system's capabilities, as well.

"This is day-and-night better than what we had before," said SGT William Terry Spencer of the 1st Battalion/108th Armor Regiment. "We get quick responses, instantaneous sometimes. You can check to see if a part is in before you do your requisition, and get next-day delivery. It's just like picking up the telephone and talking to your wife at home."

"And if you see the mouse move and you're not moving it," said Faulkner to Spencer, "I might 'ePop' you that I'm trying to fix your computer. I can remote-in and fix problems using the ePop program –"

"– instead of driving in," said Cain.

Spencer nodded. "This is great technology."

A logistics system that enhances Force Protection

While the brigade's Soldiers rave about CSS VSAT/CAISI's capabilities in allowing them electronically transmit supply requisitions and receive near-real time status reports on their orders, they also greatly appreciate that it means they no longer have to "drop disk" – meaning to get in a convoy to hand-deliver disks with requisition data to another location – which will keep them off the road and away from

improvised explosive devices or ambushes once they deploy to Iraq.

"Here at the NTC, we've been able to connect with the world of SARSS and SAMS and other FOBs (Forward Operating Bases) and we haven't been 'outside the wire' (off their base) one time – we haven't had to," said PFC Robert Kirby.

"With CSS VSAT/CAISI, we can stay off the roads," said SPC Bryan Shue of the CSSAMO. "We can stay in our FOB, talk to people in other FOBs, stay in our security. We won't have to risk our lives to order parts or to troubleshoot someone's computer."

"The force protection aspect of CSS VSAT/CAISI – "said Dudney "– as long as we can keep people from running disks up and down the road in convoys, it's got to be a great system."

"The force protection aspect is a no-brainer," agreed MAJ Marshall Rich, the brigade's S6 (communications officer).

CW Dextin Cobbs (left) and CW4 Alvin Faulkner (right) of the 48th Brigade Combat Team's Combat Service Support Automation Management Officer send a requisition with the Combat Service Support Automated Information Systems Interface, which is in the center rear of the photo. "With CAISI," said Cobbs, "you hit a button and (she snapped her fingers) – the requisition is gone – just like that."

LAR STEPS TO THE PLATE TO GET SYSTEMS FOR NTC TRAINING

While in Iraq, the brigade will use CSS VSAT/CAISI systems belonging to the 3rd Infantry Division of Fort Stewart, Ga. – however, due to funding issues, they almost missed the opportunity to train with the system at Fort Irwin. In stepped Bill Flynn, a Standard Army Management Information Systems logistics assistance representative with the Communications-Electronics Life Cycle Management Command.

"I was greatly concerned that if the 48th BCT didn't have access to CSS VSAT/CAISI until after they deployed to Iraq, they would miss the opportunity during their NTC rotation to perfect the tactics, techniques and procedures required to successfully conduct STAMIS operations in Iraq," said Flynn, who has assisted the 3ID and other units to perfect just such TTPs during prior rotations at the NTC. "They would have missed out on the opportunity to design, setup and manage a CSS VSAT/CAISI/STAMIS network; the opportunity to electronically transmit STAMIS data; the opportunity to perform remote STAMIS system maintenance; and the opportunity to use and become familiar with the capabilities of using collaboration software such as ePop web conferencing and messaging software. They would have had to start training from scratch with these systems over in Iraq."

Flynn worked tenaciously to get a suite of CSS VSAT/CAISIs fielded to Fort Irwin, teaming with LTC Forrest Burke of the Army G4; MAJ Michael Devine, the Assistant Product Manager, CSS SATCOM with the Product Manager, Defense Wide Transmission Systems; CW5 Jim DelValle of the U.S. Army Materiel Command Logistics Assistance Office; LTC Ernest Reschke, the chief of the NTC's LAO; and Douglas Woodard, the CSSAMO for Fort Irwin.

"If it wasn't for Bill Flynn being relentless, we wouldn't have had these CSS VSAT/CAISIs to train on," said Rich.

"Bill made that happen," said Reschke. "Bill coordinated with the Training Support Center on Fort Irwin and our CSSAMO. I was prepared to step up – but I didn't have to, because Bill was on it like a bulldog."

"I didn't even know what a 'LAR' was until Bill came in, introduced himself to us and said 'I'm your LAR. I'm here to help you,'" said La Banz. "He pushed to get the CSS VSAT/CAISIs for us to train on, then supplemented the training by the PM, training us at night when everyone else was asleep. Besides having a great IT (information technology) background, Bill has a wealth of contacts – he knows the right people to ask questions and how to make things happen."

Before Sept. 11, 2001, National Guard units were most often called up during times of natural disaster. Since Sept. 11, National Guard units have played a larger role on the Total Army team, often being called on to deploy Afghanistan and Iraq to help fight the Global War on Terrorism.

Logistics Assistance Representative Bill Flynn (center) is shown here training Soldiers of the 3rd Infantry Division during their rotation at the National Training Center, Fort Irwin, Calif. "Bill Flynn as been as critical to the success of soldiers deploying as anyone," said MAJ Michael Devine, the Assistant Product Manager, CSS SATCOM with the Product Manager, Defense Wide Transmission Systems. "He is one of the finest examples of a DA Civilian living the Warrior Ethos and always putting mission and Soldiers first."

"The National Guard faces unique challenges during mobilization, but their contribution is absolutely critical to our success in SWA (Southwest Asia)," said Devine. "Consequently, we must do innovative things to make sure they are given exposure to the equipment required for deployment. Deployment of CSS VSAT to the NTC prepares the Guardsmen for in-theater STAMIS operations over VSAT and CAISI."

"Today, more than ever, the National Guard needs to train like the regular Army," said La Banz, "especially the brigades. "That means STAMIS connectivity needs to be a priority – it's a combat multiplier. To be successful, we need to be fielded and train on the same systems we're going to deploy with."

Larsen serves as PEO-EIS Fort Monmouth's public-affair's officer.

LARs: Always training the next group of Soldiers

Train. Advise. Assist.

Those three words summarize the roles and responsibilities of a Logistics Assistance Representative. But as with most summaries, while these words give the basic outline of what a LAR is all about, they don't paint the entire picture.

Take Bill Flynn, a Standard Army Management Information Systems Logistics Assistance Representative with the Communications-Electronics Life Cycle Management Command. When he found out that Soldiers of the Georgia Army National Guard's 48th Brigade Combat Team would not be fielded Combat Service Support Satellite Communications systems prior to their National Training Center rotation, he went outside his lane and started a campaign with the Army G4, the Product Manager, Defense Wide Transmission Systems, the U.S. Army Materiel Command Logistics Assistance Office, the NTC's LAO and the Fort Irwin Combat Service Support Automation Management Office to get a suite of CSS SATCOM systems fielded to Fort Irwin. Now, all units slated for deployment to Iraq or Afghanistan that have not been fielded CSS SATCOM can be trained on the systems and develop tactics, techniques, and procedures before they reach theater.

"Our motto, as LARS is 'Train yourself out of a job,'" said Flynn. "But with new operators, and new rotations, I'll never be out of work."

And Flynn never seems to stop working. Even while bouncing down a dusty road in an SUV, on the way to the "in the box" training area of the NTC to support Soldiers of the 48th BCT, Flynn is on the cell phone, returning a call to a customer at another Army base to talk them through a software procedure.

Computers and the Army are in Flynn's blood. He enlisted in the Army in 1980 and was first assigned as a young private as a supply clerk in Germany. By the mid-80s, Flynn had become a Chinook pilot, later serving with the 101st Airborne Division in Saudi Arabia during the 1991 Gulf War. After leaving the Army, he opened a computer store, which he sold after six years and then served for two years in the Army Reserve. Then he went to work at Redstone Arsenal, Ala., as a civilian contractor writing a computer program to put data from DA Form 2410, "Component Removal and Repair/Overhaul Record" – which is used to monitor life-cycle maintenance actions on components and modules of Army aircraft – into a database.

He caught wind of the concept of LARs and applied for two programs – as a General Aviation LAR and as a STAMIS LAR. He was offered both positions and chose the STAMIS LAR program, seeing it as a better career opportunity. On March 13, 2000, Flynn became one of the first eight STAMIS LARs hired by the U.S. Army Communications-Electronics Command, now known as the Communications-Electronics

Life Cycle Management Command.

On May 1, 2005, Flynn was promoted to one of the Army's first STAMIS LAR master technician positions. Barron Williams, who is currently the CE-LCMC deputy director for Readiness, originally put the STAMIS LAR program into existence in 2000. "I'm especially proud of Bill and the other four people selected as STAMIS LAR Master Technicians positions – John Pandoliano, Louis Cortopassi, LeRoy Houston and Denis Torres – because we started the STAMIS LAR program from nothing but the broadest of guidance," said Williams. "These guys have made it work, made it relevant and found a way to provide great value to the Army.'

"Bill Flynn has been as critical to the success of Soldiers deploying as anyone," said MAJ Michael Devine, the assistant product manager, CSS SATCOM with the Product Manager, Defense Wide Transmission Systems. "He is one of the finest examples of a DA Civilian living the Warrior Ethos and always putting mission and Soldiers first. Bill's technical expertise, team player orientation and persistence have contributed immeasurably to the success of STAMIS Operations across the Army."

Demands of the LAR program

"Of those original eight STAMIS LARS, there are only two of us left," noted Flynn. "The demands of the program are arduous."

Such as deployments. Flynn has deployed to Bosnia once and to Kosovo twice. In December 2003, he deployed to Baghdad Iraq for four months to provide STAMIS support to the 1st Armored Division. In 2004, he supported the 3rd Infantry Division through a month-long rotation to the NTC and two month-long rotations to the Joint Readiness Training Center, Fort Polk, La. This year, in addition to supporting the 48th BCT of the Georgia Army National Guard through their month-long NTC rotation, he is also supporting the 2/28th BCT of the Pennsylvania Army National Guard through their month-long NTC rotation.

"My family doesn't like for me to deploy," said Flynn – he and his wife have three children. "But, my whole family is committed to what our country's trying to do, so they understand my commitment and the demands of the program."

Besides deployments, what are the other demands of the STAMIS LAR program?

"Well, there's this whole laundry list of STAMIS systems we're responsible for," Flynn said, taking out his business card – printed on the back of the card is a list of many of the key systems he supports – "There's not enough room on the card to list all of the systems," said Flynn. The list on his card includes the Standard Property Book System-Redesign, Standard Army Retail Supply System, Standard Army Maintenance System, Standard Army Ammunition System, Movement Tracking System, Unit Level Logistics System and Integrated Logistics Analysis Program – along with office automation hardware and software and the CSS SATCOM system, which includes Combat Service Support Very Small Aperture Terminals in tandem with the Combat Service Support Automated Information Systems Interface. "You've got to stay on top of your game and know about all these STAMISes," said Flynn. "You've got to be the expert and know how to make them all talk to each other. It's a lot of pressure."

On top of that, that Flynn is the type of guy who just can't rest until he's turned over every stone to not only find the solution his customer needs, but to then take that solution and go beyond. When he was at NTC supporting the 3ID in May-June of 2004, his mission was ostensibly to 'Connect Army Logisticians' with CSS VSATs and CAISIs. But he typically spent 14 to 18 hour days, bouncing in an SUV across the dusty desert with members of the 3ID's Combat Service Support Automation Management Office to wherever the 3ID's units had "jumped" to another location, adding additional capabilities beyond the ability to transmit data – including text messaging, text conferencing, collaboration software and Voice over Internet Protocol telephone capability. As CW2 Angel Montero, a CSSAMO technician for the 3ID, said at the time: "We (he and Flynn) tag-teamed this whole thing. We 'Connected the Logistician' two weeks ago. Now, we're going beyond."

"What we did was take the spirit intended by the term 'Connect the Logistician,"' said Flynn, "and went even further."

Now, units such as the 48th BCT and the 2/28th BCT are able to build on the rock-solid foundation Flynn helped lay and not start from scratch with CSS VSAT/CAISI.

"Bill's done a great job, we couldn't have made it through this endeavor without him," said CW5 Robert Tadlock of the 48th BCT. "He's been with us through rain and shine."

On the way back from the "in the box" training area of the NTC with MAJ Robert La Banz, the CSSAMO for the 48th BCT, Flynn told how, after spending the better part of a year helping train Soldiers of the 3ID in CSS VSAT/CAISI, he was assigned elsewhere when it was time for the 3ID to return to Iraq. "And now I won't be going with you guys to Iraq, either – I'll be deploying to Afghanistan," he said to La Banz. "I have an empty feeling in the pit of my stomach, like I'm letting you down."

La Banz jumped right in. "Get rid of that feeling," he said, practically making it sound like an order. "You've helped us so much. Train the next group of Soldiers – they'll need you as much as we did."

Mr. Larsen serves as PEO-EIS Fort Monmouth's public-affairs officer.

Communications Security Directorate 'resets' units throughout the States

By Anthony Ricchiazzi

Tobyhanna Army Depot, Pa.—Teams of depot technicians are

repairing thousands of secure communications systems being returned from Operations Iraqi Freedom and Enduring Freedom.

The technicians, from the Communications Security and Tactical Missile Systems Directorate, are the Army's key source for COMSEC reset and have been working the mission for about a year.

The mission is coordinated with the Communications Security Logistics Activity, Fort Huachuca, Ariz., and is part of the Army's Reconstitution Program to repair and overhaul Army systems that were heavily used during Operations Iraqi Freedom and Enduring Freedom; equipment is returned to like-new condition to support future requirements.

"To date, we have reset about 18,000 items, ranging from AN/CYZ 10 (V3) Data Transfer Devices to KY-68 Digital Subscriber Voice Terminals," said Mark Costello, logistics management specialist, Support Services Division, COMSEC and Tactical Missile Systems Directorate.

Data Transfer Devices secure a wide variety of communications equipment used throughout the services; KY-68s are secure tactical field telephones. Other COMSEC equipment being repaired for the reset effort includes trunk encryption and network inline encryption devices.

The mission involves four-person teams traveling to installations such as Fort Bragg, N.C. (XVIII Airborne Corps); Fort Campbell, Ky. (101st Airborne Division); Fort Carson, Colo. (534th Signal Battalion); and Fort Stewart, Ga. (3rd Infantry Division); exchanging field unit equipment one for one in a direct exchange program with condition code A assets from Tobyhanna (also called seed assets). "The idea is to bring units up to combat readiness status as quickly as possible," Costello said.

"We offer this opportunity to exchange all their COMSEC equipment, ensuring the units have the most reliable equipment possible for their next deployment," said Ron Roberts, COMSEC project officer, Support Services Division. Currently, there is a team at Fort Gordon, Ga.; and Fort Bliss, Texas; serving units such as the 56th Signal Battalion and III Corps. Preparations are being made for two trips to Hawaii for the 25th Infantry Division.

"Before we started the actual traveling and repairing, an aggressive workload was scheduled through CSLA to build up our seed asset levels, not only to fill direct exchange requirements, but also to meet any unforeseen surge requirements," he said. "For example, 498 KY 68 Digital Subscriber Voice Terminals were brought up to standards to meet additional new requirements of units at Fort Gordon."

The Defense Distribution Depot Tobyhanna ships equipment for the reset effort.

"DDTP has provided us with steady support, helping maintain a continuous flow of equipment coming in and going out, enabling our teams to reset units on a scheduled timeline," Roberts said. "We coordinate with the unit, the installation, Army Materiel Command headquarters and the appropriate major subordinate command, such as TACOM (Tank-Automotive Command) or CE-LCM Command (U.S. Army Communications Electronics Life Cycle Management Command)."

The reset mission involves every aspect of COMSEC directorate operations and is a team effort. "Between 30 and 55 percent of our COMSEC personnel are working this at any one time, and have been very successful," said Robert Dittman, chief of the Support Services Division.

The overall success of the program has also drawn interest from units not currently on the reset schedule. "It's blossoming," Costello said. "CSLA has been in contact with the National Guard Bureau to set up meetings to discuss the possible reset of National Guard units throughout the states."

Mr. Ricchiazzi serves with the Tobyhanna Army Depot in public affairs.

ACRONYM QUICKSCAN

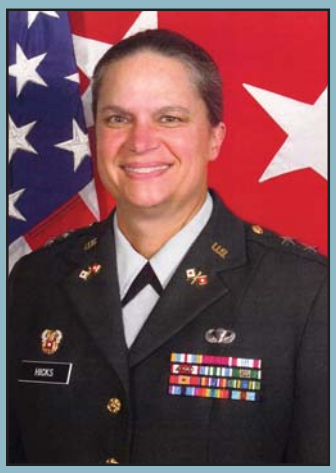
3ID – 3rd Infantry Division
AMC – Army Materiel Command
BCT – Brigade Combat Team
CAISI – Combat Service Support Automated Information Systems Interface
CCSAMO – Combat Service Support Automation Management Office
CECOM – Army Communications-Electronics Command
CE-LCMC – Communications-Electronics Life Cycle Management Command
CSLA – Communications Security Logistics Activity
CSS SATCOM – Combat Service Support Satellite Communications
CSS VSAT – Combat Service Support Very Small Aperture Terminal
DDTP – Defense Distribution Depot Tobyhanna
DSST – Direct Support Signal Teams
FOB – Forward Operating Base
IED – improvised explosive devices
ILAP – Integrated Logistics Analysis Program
ITSB – Integrated Theater Signal Battalion
LAO – Logistics Assistance Office
LAR – Logistics Assistance Representative
MNF-C – Multi-National Force
MNF-I – Multi-National Force – Iraq
MTS – Movement Tracking System
MSE – Mobile Subscriber Equipment
NETCOM – Network Command
NTC – National Training Center
OM&P – operate, maintain, and protect
PM DWTS – Product Manager, Defense Wide Transmission Systems
SAAS – Standard Army Ammunition System
SAMS – Standard Army Maintenance System
SARSS – Standard Army Retail Supply System
SPBS-R – Standard Property Book System-Redesign
STAMIS – Standard Army Management Information Systems
SWA – Southwest Asia
TACOM – Tank-Automotive Command
TCF – Technical Control Facilities
TTP – techniques, and procedures
ULLS – Unit Level Logistics System
ULLS-G – Unit Level Logistics System-Ground
USARPAC – U.S. Army Pacific
VoIP – Voice over Internet Protocol

Hicks bids fond farewell to Regimental TEAM

Signal Regiment,

I've had the honor of serving as your Chief of Signal for almost three years. This is my last message to you in *Army Communicator* in that capacity. I do this with great pride in the achievements of our Regiment, with deepest affection for and admiration of Soldier, Civilian, Contractor and Industry teammates, and with profound emotions as I leave the Army.

When he was the PACOM J6, (then) BG Dave Bryan adopted the motto "T.E.A.M., Together Everyone Achieves More." He even put it on the coffee cups! I admit I wish I'd thought of it myself (smile), and I've bootlegged it many times since I first heard it. The Army is truly about working and succeeding as a team, and it has been my distinct pleasure to be on your team. I hope I've been a good team leader, but, more important, I hope I've been a good teammate. Those of us closer to the end than the beginning of our service look with awe at the young Americans joining our ranks. I'm inspired by the Army's young leaders and Soldiers, and have absolute confidence that our Army and our nation's future are in capable, caring hands.



MG Janet A. Hicks

It's never been about knobs and antennas for me. Most of you probably know I'm dangerous with that sort of thing. It's always been about people for me. My goal has been to enable, to help, to nurture, mentor and coach … people. I thank you for the opportunity to have done that. I cherish the friendships, the memories, the camaraderie that only Brothers and Sisters at Arms can share.

Remember "Monty Python's Flying Circus" and the expression, "and now, for something completely different." My family and I are heading off to a completely new chapter in our lives. We're settling in Augusta and I'm going to be the high school principal at our daughter's school. We're all very excited about it, even my daughter! I'm not kidding (smile). In this role, I'm overjoyed to know that I'll still be able to teach, mentor and coach … America's young people.

At the same time, I'm often in tears knowing that I'm truly rounding a bend that will not have my beloved Signal Regiment on the other side. Our paths won't cross very often, Team, but when they do, I will consider it my great fortune. I wish you and your families successes in everything you do, safe travels around our troubled world, love in your life, and the greatest joys that life can give. At risk of getting the eye roll, consider yourself hugged.

MG Jan Hicks
Chief of Signal

"What Does the Regiment Think?"

ARMY *Communicator*

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